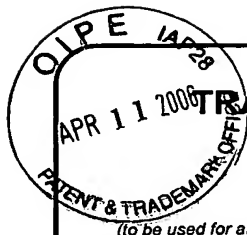


Attn: Attorney Paul Shanowski

PTO/SB/21 (09-04)



TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	10/635,764
Filing Date	August 5, 2003
First Named Inventor	Arai, Kouji
Art Unit	2161
Examiner Name	Frantz Coby
Attorney Docket Number	16869P-006210US

ENCLOSURES (Check all that apply)

- | | | |
|--|--|---|
| <input type="checkbox"/> Fee Transmittal Form
<input type="checkbox"/> Fee Attached
<input type="checkbox"/> Amendment/Reply
<input type="checkbox"/> After Final
<input type="checkbox"/> Affidavits/declaration(s)
<input type="checkbox"/> Extension of Time Request
<input type="checkbox"/> Express Abandonment Request
<input type="checkbox"/> Information Disclosure Statement

<input type="checkbox"/> Certified Copy of Priority Document(s)
<input type="checkbox"/> Reply to Missing Parts/ Incomplete Application
<input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53 | <input type="checkbox"/> Drawing(s)
<input type="checkbox"/> Licensing-related Papers
<input type="checkbox"/> Petition
<input type="checkbox"/> Petition to Convert to a Provisional Application
<input type="checkbox"/> Power of Attorney, Revocation
<input type="checkbox"/> Change of Correspondence Address
<input type="checkbox"/> Terminal Disclaimer
<input type="checkbox"/> Request for Refund
<input type="checkbox"/> CD, Number of CD(s) _____
<input type="checkbox"/> Landscape Table on CD | <input type="checkbox"/> After Allowance Communication to TC
<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Status Letter
<input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):
1. Renewed Petition Under 37 CFR 1.181
2. 5 Prosecution Docket Report(s)
3. Docket for Robert C. Colwell
4. COPY File Jacket for 10/635,764
5. Return Postcard |
|--|--|---|

Remarks The Commissioner is authorized to charge any additional fees to Deposit Account 20-1430.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Townsend and Townsend and Crew LLP		
Signature			
Printed name	Robert C. Colwell		
Date	April 7, 2006	Reg. No.	27,431

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

Signature			
Typed or printed name	Margaret K. Stephan	Date	April 7, 2006



PATENT
Docket No.: 16869P-006210US
Client Ref. No.: 349800444US2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Kouji ARAI et al.

Application No.: 10/635,764

Filed: August 5, 2003

For: System and Method for
Replicating Data

Examiner: Frantz Coby

Art Unit: 2161

Renewed Petition Under 37 C.F.R. § 1.181

Mail Stop Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

ATTENTION: ATTORNEY PAUL SHANOSKI

Sir:

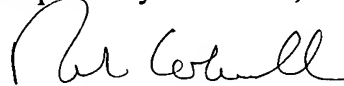
Counsel is in receipt of the Decision on Petition Under 37 C.F.R. § 1.181 whereby counsel's Petition to Withdraw Holding of Abandonment dated January 5, 2006, has been dismissed. In response to that Decision, counsel submits this Renewed Petition Under 37 C.F.R. § 1.181 and again includes copies of the central law firm Prosecution Docket Report(s), as well as a copy of the personal docket maintained by counsel's secretary for the period in question. These docket copies contain no yellow highlighting so that the Patent Office should now be able to scan the documents into its electronic system. In addition, and in response to the suggestion of Mr. Shanoski, counsel encloses a copy of the complete file jacket for this patent application. As should be apparent, there is no Notice of Allowance and Issue Fee Due in the file wrapper or in the docket. As counsel stated before, one was never received.

Counsel believes that he has now complied with all requirements and suggestions by this Renewed Petition and requests that a Notice of Allowance be reissued at

the earliest convenience of the Patent Office. Counsel further believes that no fee is required for this petition.

If a telephone conference would expedite the disposition of this Renewed Petition, Mr. Shanoski is invited to telephone the undersigned at 650-324-6303 (direct).

Respectfully submitted,



Robert C. Colwell
Reg. No. 27,431

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: (415) 576-0200
Fax: (415) 576-0300
RCC:mks

Prosecution Docket Report

For: Robert C. Colwell

Country: For All Countries

Start Date: 10/07/05

End Date: 11/06/05

Date Type: Both Due and Reminder Dates

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Atlys
Due Date: 10/07/2005 16869N-116300US (Pat)	Issue Fee Patent Term Adjustment: 0 days, Client Requests No Additional PTA Calculation; Check re: filing continuation/division	Paper Sheet Storing and Releasing Apparatus Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/856375 5/27/2004	US Pending - Published	RCC - RCC
Due Date: 10/08/2005 00939A-079200US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-8-05	New Spacer Oxide Formation Method for Flash Memory Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 10/08/2005 022267-000300US (Pat)	File Non-Provisional Application 1- Mo Reminder	Method for Improving Demand Forecast Using Downstream Product Movement Information Truth Software, Inc.	60/626194 11/8/2004	US Pending	RCC - RCC RCC
Due Date: 10/08/2005 16869P-019800US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-8-05	Multiprocessor System & Data Transmitting Method TMI Associates		US Not yet filed	RCC - RCC
Due Date: 10/08/2005 16869S-053800US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-8-05	Firewell Apparatus Asamura Patent Office (for Hitachi, Ltd.		US Not yet filed	RCC - RCC
Due Date: 10/08/2005 16869S-090800US (Pat)	Response to Office Action Interview Summary 09/13/05 (received 09/16/05)	Method for Accessing Distributed File System Asamura Patent Office (for Hitachi, Ltd.	10/645813 8/20/2003	US Pending	RCC - RCC
Due Date: 10/09/2005 16869N-138900US (Pat)	Notice Non-Recordation Notice of Non-Recordation 09/09/05 (received by mail 09/20/05)	Optical Disk Apparatus and a Portable Information Processing Apparatus Mounting the Same Therein Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	11/034313 1/11/2005	US Pending	RCC - RCC

10/635,764

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/10/2005 011775-015900US (Pat)	Target Filing Date - 2 mo. Reminder Original Target Filing Date 08/10/05	PDP Drive Circuit Ixys Corporation		US Not yet filed	RCC - RCC
Due Date: 10/10/2005 013843-004300US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-10-05	Center Readout Intra-Oral Image Sensor Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/10/2005 013843-004400US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-10-05	Digital Sensor Cassette for Mammography Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/10/2005 16869P-046710US (Pat)	Priority Document	Data Recording Device for Recording Data In Basic Recording Units TMI Associates	11/150790 6/10/2005	US Pending	RCC - RCC
Due Date: 10/11/2005 021111-001400US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-11-05	Vector SRAM Telarity Semiconductor, Inc.		US Not yet filed	RCC - RCC
Due Date: 10/11/2005 021111-001700US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-11-05	Video Switch Matrix and Control Telarity Semiconductor, Inc.		US Not yet filed	RCC - RCC
Due Date: 10/11/2005 16869N-037200US (Pat)	Response to Office Action	Data Supplying Method and a Portable Terminal Unit and a Data Supplying Apparatus Used In the Method Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/052286 10/19/2001	US Pending - Published	RCC - RCC
Due Date: 10/11/2005 16869N-050400US (Pat)	Response to Office Action (2nd Extension)	Wave Soldering Method Using Lead-Free solder, Apparatus Therefor, and Wave-Soldered Assembly Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/133778 4/25/2002	US Pending - Published	RCC - RCC
Due Date: 10/11/2005 16869S-052900US (Pat)	Issue Fee Patent Term Adjustment: 530 days, Client Requests No-Additional PTA Calculation, Check re-filing continuation/division	Method and System of Database Management for Replica Database Asamura Patent Office (for Hitachi, Ltd.	10/184246 6/26/2002	US Pending - Published	RCC - RCC
Due Date: 10/12/2005 16869K-034000US (Pat)	Response-2nd Office Action	Storage Area Network System, Storage and Data Transfer Amount Monitoring Apparatus Isshiki International Patent Office	09/949264 9/6/2001	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Atlys
<u>Due Date: 10/12/2005</u> 16869N-051200US (Pat)	<u>Response to Office Action</u>	<u>Data Processing Method, Data Processing Apparatus, and Data Processing Program</u> Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	<u>10/152439</u> <u>5/20/2002</u>	<u>US</u> <u>Pending -</u> <u>Published</u>	<u>RCC - RCC</u>
<u>Due Date: 10/12/2005</u> 16869N-088400US (Pat)	<u>Issue Fee</u> <u>Patent Term Adjustment: 0 days,</u> <u>Client Requests No Additional PTA</u> <u>Calculation; Check re: filing</u> <u>continuation/division</u>	<u>Optical Transmission Module</u> Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	<u>10/631411</u> <u>7/30/2003</u>	<u>US</u> <u>Pending -</u> <u>Published</u>	<u>RCC - RCC</u>
<u>Due Date: 10/12/2005</u> 16869N-115800US (Pat)	<u>1-mo. to publication</u>	<u>Storage System</u> Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	<u>10/845409</u> <u>5/12/2004</u>	<u>US</u> <u>Pending</u>	<u>RCC - RCC</u>
<u>Due Date: 10/13/2005</u> 16869N-075700US (Pat)	<u>Response to Final Office Action</u>	<u>Optical Transmission Module</u> Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	<u>10/384509</u> <u>3/6/2003</u>	<u>US</u> <u>Pending -</u> <u>Published</u>	<u>RCC - RCC</u>
<u>Due Date: 10/13/2005</u> 16869N-075700US (Pat)	<u>Notice of Appeal</u>	<u>Optical Transmission Module</u> Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	<u>10/384509</u> <u>3/6/2003</u>	<u>US</u> <u>Pending -</u> <u>Published</u>	<u>RCC - RCC</u>
<u>Due Date: 10/14/2005</u> 022402-000100US (Pat)	<u>Target Filing Date</u>	<u>Billaway Invention</u> Billaway, Inc.		<u>US</u> <u>Not yet filed</u>	<u>RCC - RCC</u>
<u>Due Date: 10/14/2005</u> 16869P-007200US (Pat)	<u>Response-2nd Office Action (1st Ext)</u>	<u>Network Measurement</u> <u>Controlling System Apparatus</u> <u>and Method</u> TMI Associates	<u>09/571003</u> <u>5/15/2000</u>	<u>US</u> <u>Pending</u>	<u>RCC - RCC</u>
<u>Due Date: 10/14/2005</u> 16869P-059600US (Pat)	<u>Issue Fee</u> <u>Patent Term Adjustment: 460 days,</u> <u>Client Requests No Additional PTA</u> <u>Calculation; Check re: filing</u> <u>continuation/division</u>	<u>Error Detecting Method and</u> <u>Device, Information Storing and</u> <u>Reproducing Device and</u> <u>Magnetic Disk Drive</u> TMI Associates	<u>10/364746</u> <u>2/10/2003</u>	<u>US</u> <u>Pending -</u> <u>Published</u>	<u>RCC - RCC</u>
<u>Due Date: 10/15/2005</u> 00939A-037020US (Pat)	<u>Target Filing Date - 3 mo. Reminder</u> <u>original target filing date: 7-15-05</u>	<u>NONVOLATILE MEMORY</u> <u>INTERFACE PROTOCOL FOR</u> <u>IMPROVED SYSTEMS</u> <u>PERFORMANCE</u> Hynix Semiconductor America Inc.		<u>US</u> <u>Not yet filed</u>	<u>RCC - RCC</u>

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Atty's
Due Date: 10/15/2005 021498-002900US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-15-05	Method of Treating a Substrate to Create a Predetermined Surface Profile CSIRO Telecommunications and Industrial Physics		US Not yet filed	RCC - RCC
Due Date: 10/15/2005 16869N-125400US (Pat)	Resp-1 mo. Restriction Requirement	Semiconductor Device and Production Method Therefor Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/503350 7/30/2004	US Pending - Published	RCC - RCC
Due Date: 10/16/2005 00939A-045900US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-16-05	MODULAR HANDSET/USER TERMINAL FOR WIRELESS COMMUNICATION Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 10/16/2005 018087-000100US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-16-05	JAVA-BASED TOOL KIT FOR CREATING WEB PAGES ISARDA, INC.		US Not yet filed	RCC - RCC
Due Date: 10/16/2005 16869S-055100US (Pat)	Response to Office Action (1st Extension)	Time Information Display System Asamura Patent Office (for Hitachi, Ltd.	10/213536 8/6/2002	US Pending - Published	RCC - RCC
Due Date: 10/17/2005 16869N-116000US (Pat)	1-mo. to publication	Electronic Terminal Apparatus Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/847777 5/17/2004	US Pending	RCC - RCC
Due Date: 10/17/2005 16869N-116100US (Pat)	1-mo. to publication	Recording/Reproducing Apparatus Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/848017 5/17/2004	US Pending	RCC - RCC
Due Date: 10/17/2005 16869P-009710US (Pat)	Response to Office Action (2nd Extension)	Phase Frequency Synchronism Circuitry and Optical Receiver TMI Associates	10/436802 5/12/2003	US Pending - Published	RCC - RCC
Due Date: 10/17/2005 16869P-112000US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-17-05	Remote Copy Network TMI Associates		US Not yet filed	RCC - RCC
Due Date: 10/18/2005 025613-000110US (Pat)	Target Filing Date	Method and System for Placing a Bid and Receiving the Results of that Bid Via a Communications Network CrewParings, Inc.		US Not yet filed	RCC - RCC

Date Client/Matter-(Pat/TEM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue/Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/18/2005 16869N-111400US (Pat)	Response to Office Action	Projection Type Image Display Device Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/809003 3/24/2004	US Pending - Published	RCC - RCC
Due Date: 10/18/2005 16869S-038700US (Pat)	Response to Office Action (2nd Extension)	Method for Supporting the Orders Received of Transformer Asamura Patent Office (for Hitachi, Ltd.	10/006684 12/7/2001	US Pending - Published	RCC - RCC
Due Date: 10/19/2005 013843-005800US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Instant Color Image Capture Technique Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-005900US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Two-Story Selenium-Silicon CCD Very High Resolution X- Ray Imager Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-006000US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Manufacturing Method for a Multi-Chip X-Ray Image Sensor Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-006100US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Temporary Noise Suppression Memory Circuit for Analog Integrating Detectors Which Utilize Signal Over Sampling Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-006200US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	High Resolution Hyperspectral Single Linear Image Sensor Array Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-006300US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Stress Relief & Edge Passivation Structure Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-006500US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Image Interpolation & Filtering Algorithm for Matrix for Monochrome & Color Imaging Application Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-006600US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	A CCD Sensor for Space Applications Fairchild Imaging		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/19/2005 013843-0067000US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Variable Optical Weight Coded Black & White & Color CCD Olmage Sensor & Image Processing Algorithm Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-0068000US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Mosaic Image Sensor With Shaped Fiber Optics Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-0070000US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Single Strobe & Multi-Light Source Imaging Camera With Coded Image Sensor for 3D Information Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-0071000US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Cinema Motion Picture Sequence & Slow Framing, High-Cinema Resolution Camera for RECCE, Animation, Cinema Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-0072000US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Redundant Staggered TD1 CCD Arrays Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-0073000US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Sequential Imager with Pseudorandom Pixel Layout Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-0074000US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Coder Image Sensor with Exposure Control Interlace & Scene Super-Nyquist Sampling Capability Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-0075000US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Gazebo Lamp Artificial Light Source Corner Connector Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-0076000US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Dual Energy X-Ray Imaging System for Bone Densitometry Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-0078000US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Honey Plate Shaped Solid-State Imager Fairchild Imaging		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp/Party Other Attys
Due Date: 10/19/2005 013843-007900US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Integrated Image Sensor & Flip Mirro Assembly Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 16869S-104600US (Pat)	Response to Office Action	Terminal Device, Service Providing Server, and RF Tag Sheet Asamura Patent Office (for Hitachi, Ltd.	10/730785 2/2/2004	US Pending - Published	RCC - RCC
Due Date: 10/20/2005 16869B-028110US (Pat)	Notice of Appeal (Final)	Storage Device with I/O Counter for Partial Data Reallocation Hitachi, Ltd.	10/665893 9/19/2003	US Pending	RCC - RCC
Due Date: 10/20/2005 16869P-071700US (Pat)	Notice of Appeal (1st Ext.)	Electronic Device TMI Associates	10/384308 3/7/2003	US Pending - Published	RCC - RCC
Due Date: 10/20/2005 16869P-071700US (Pat)	Response to Final Office Action (1st Extension)	Electronic Device TMI Associates	10/384308 3/7/2003	US Pending - Published	RCC - RCC
Due Date: 10/20/2005 16869S-023200US (Pat)	Response to Office Action (2nd Extension)	Method and System for Financially Intermediating Transaction of Products Asamura Patent Office (for Hitachi, Ltd.	09/796775 2/28/2001	US Pending - Published	RCC - RCC
Due Date: 10/21/2005 021206-000910US (Pat)	Target Filing Date - 6 mo. Reminder original target filing date 4-21-05	Secure and Portable Data Communicator and Viewer StorCard, Inc.		US Not yet filed	RCC - RCC
Due Date: 10/21/2005 021206-001010US (Pat)	Target Filing Date - 6 mo. Reminder original target filing date 4-21-05	Hierarchical Storage Management of Encrypted Data Files StorCard, Inc.		US Not yet filed	RCC - RCC
Due Date: 10/21/2005 16869S-111700US (Pat)	Status Check	Laser Power Calibration Method for an Optical Disk Apparatus Asamura Patent Office (for Hitachi, Ltd.	10/808922 3/24/2004	US Pending - Published	RCC - RCC
Due Date: 10/22/2005 16869S-041000US (Pat)	Response to Office Action	Method and Apparatus for Executing Java Application Program Asamura Patent Office (for Hitachi, Ltd.	10/052423 1/17/2002	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/23/2005 12172H-005210US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-23-05	CMOS Circuit for Implementing Boolean Functions Intergraph Hardware Technologies Co.		US Not yet filed	RCC - RCC
Due Date: 10/24/2005 26869T-153000US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 6-24-05	Disk Array Device and Control Method Therefor TMI Associates (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC
Due Date: 10/25/2005 021111-000500US (Pat)	Response to Office Action	Idle Power Reduction for State Machines Telairity Semiconductor, Inc.	10/284623 10/30/2002	US Pending - Published	RCC - RCC
Due Date: 10/25/2005 025613-000100US (Pat)	Foreign Filing Deadline If notification letter sent to RCC for signature 8/03/05 & 9/19/05	Method and System for Placing a Bid and Receiving the Results of that Bid Via a Communications Network CrewPairings, Inc.	60/622123 10/25/2004	US Pending	RCC - RCC RCC
Due Date: 10/25/2005 025613-000100US (Pat)	File Non-Provisional Application	Method and System for Placing a Bid and Receiving the Results of that Bid Via a Communications Network CrewPairings, Inc.	60/622123 10/25/2004	US Pending	RCC - RCC RCC
Due Date: 10/25/2005 16869S-174100US (Pat)	Target Filing Date - 6 mo. Reminder original target filing date 4-25-05	Reproducing Apparatus and Recording/Reproducing Apparatus Asamura Patent Office (for Hitachi, Ltd.		US Not yet filed	RCC - RCC
Due Date: 10/26/2005 16869B-036500US (Pat)	Response to Office Action	Storage System for Content Distribution Hitachi, Ltd.	10/104779 3/21/2002	US Pending - Published	RCC - RCC
Due Date: 10/26/2005 16869E-082620US (Pat)	Status Check (Letters Patent Received?)	Process Depending On Plasma Discharges Sustained By Inductive Coupling Hitachi Kokusai Electric Inc.	08/748746 685811-2 11/18/1996 7/22/2005	US Granted	RCC - RCC
Due Date: 10/26/2005 16869N-041200US (Pat)	Response to Office Action (2nd Extension)	Method for Non-Destructive Inspection, Apparatus Thereof and Digital Camera System Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/057562 1/25/2002	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
<u>Due Date: 10/26/2005</u> 16869N-160000US (Pat)	Missing Parts Deadline	Optical Disk Video Camera Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	11/197193 8/3/2005	US Pending	RCC - RCC
<u>Due Date: 10/27/2005</u> 013843-004100US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-27-05	Intra-Oral X-Ray CCD Imager with Chamfered Corners Fairchild Imaging		US Not yet filed	RCC - RCC
<u>Due Date: 10/27/2005</u> 16869N-061000US (Pat)	Notice of Appeal	Information Recording Method and Information Recording Apparatus Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/268570 10/9/2002	US Pending - Published	RCC - RCC
<u>Due Date: 10/27/2005</u> 16869N-061000US (Pat)	Response to Final Office Action	Information Recording Method and Information Recording Apparatus Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/268570 10/9/2002	US Pending - Published	RCC - RCC
<u>Due Date: 10/27/2005</u> 16869N-075800US (Pat)	Issue Fee Patent Term Adjustment: 0 days. Client Requests No Additional PTA Calculation; Check re: filing continuation/division	Mobile Terminal and Navigation System Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/383913 3/7/2003	US Pending - Published	RCC - RCC
<u>Due Date: 10/27/2005</u> 16869P-034700US (Pat)	Notice of Appeal (1st Ext.)	Method and System for Storing and Managing Electronic Mail TMI Associates	10/167011 6/10/2002	US Pending - Published	RCC - RCC
<u>Due Date: 10/27/2005</u> 16869P-058500US (Pat)	Response to Office Action (1st Extension)	Network Storage System and Control Method TMI Associates	10/251154 9/20/2002	US Pending - Published	RCC - RCC
<u>Due Date: 10/27/2005</u> 16869S-051300US (Pat)	Response to Office Action	Method, Apparatus, and System, Computer Program and Computer Program Product for Network Management Asamura Patent Office (for Hitachi, Ltd.	10/152545 5/20/2002	US Pending - Published	RCC - RCC
<u>Due Date: 10/27/2005</u> 16869S-058900US (Pat)	Notice of Appeal	Data Mapping Management Apparatus Asamura Patent Office (for Hitachi, Ltd.	10/236216 9/5/2002	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/27/2005 16869S-058900US (Pat)	Response to Final Office Action	Data Mapping Management Apparatus Asamura Patent Office (for Hitachi, Ltd.	10/236216 9/5/2002	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 011775-006400DE (Pat)	End:Opposition Period	OVERVOLTAGE CLAMP & DESATURATION DETECTION CIRCUIT Ixys Corporation	P19600808.5 1/11/1996 7/28/2005	Germany Granted	RCC - RCC
Due Date: 10/28/2005 021206-001100US (Pat)	File Non-Provisional Application	Latch in a Flexible Magnetic Storage Card StorCard, Inc.	60/623315 10/28/2004	US Pending	RCC - RCC RCC
Due Date: 10/28/2005 021206-001100US (Pat)	Foreign Filing Deadline rec'd instructions not to foreign file 9/20/05, ff notification letter sent to RCC for signature 8/03/05 & 9/20/05	Latch in a Flexible Magnetic Storage Card StorCard, Inc.	60/623315 10/28/2004	US Pending	RCC - RCC RCC
Due Date: 10/28/2005 16869B-018700US (Pat)	Response to Office Action	Method & Apparatus for Resource Allocation in Network Router & Switch Hitachi, Ltd.	09/925182 8/8/2001	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869N-044700US (Pat)	Resp. lmo: Restriction Requirement	Information-Recording Apparatus and Information Recording Method Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/087514 2/28/2002	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869P-048700US (Pat)	Response to Office Action	Information Receiving System and Information Receiving Terminal TMI Associates	10/138106 5/3/2002	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869P-071500US (Pat)	Response Notice of Non-Responsive Amendment 09/28/05 (received 09/30/05) Extensions of Time Available Under 37 CFR 1.136(a)	Circuit Board and Electronic Device, and Method of Manufacturing Same TMI Associates	10/371303 2/20/2003	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869S-059000US (Pat)	Notice of Appeal (1st Ext.)	System and Method for Database Query Optimization Asamura Patent Office (for Hitachi, Ltd.	10/236407 9/5/2002	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Atty's
Due Date: 10/28/2005 16869S-059000US (Pat)	Response to Final Office Action (1st Extension)	System and Method for Database Query-Optimization Asamura Patent Office (for Hitachi, Ltd.)	10/236407 9/5/2002	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869S-1089000US (Pat)	Response to Office Action	Storage Device Asamura Patent Office (for Hitachi, Ltd.)	10/795049 3/3/2004	US Pending - Published	RCC - RCC
Due Date: 10/29/2005 012752-000500US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-29-05	ROTARY-SCANNER Axon Instruments, Inc.		US Not yet filed	RCC - RCC
Due Date: 10/29/2005 021603-000100US (Pat)	2nd Notice of Appeal	System and Methods for Facilitating Negotiations for Supply Chain Control eInnovate, Inc.	10/125688 4/17/2002	US Pending - Published	RCC - RCC
Due Date: 10/29/2005 021603-000100US (Pat)	Response-2nd Final Office Action	System and Methods for Facilitating Negotiations for Supply Chain Control eInnovate, Inc.	10/125688 4/17/2002	US Pending - Published	RCC - RCC
Due Date: 10/29/2005 16869N-080000US (Pat)	Response to Office Action (1st Extension)	Information Recording Apparatus Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/424456 4/25/2003	US Pending - Published	RCC - RCC
Due Date: 10/29/2005 16869S-152900US (Pat)	Priority Document	Semiconductor Device Asamura Patent Office (for Hitachi, Ltd.)	11/1472207 6/29/2005	US Pending	RCC - RCC
Due Date: 10/30/2005 00939A-046400US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-30-05	COLUMN SWITCH IN SEMICONDUCTOR MEMORY Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 10/30/2005 16869N-160700US (Pat)	Missing Parts Deadline	Projection Image Display Apparatus and Projection Optical Unit To Be Used Therein Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	11/200353 8/8/2005	US Pending	RCC - RCC
Due Date: 10/30/2005 16869P-121400US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-30-05	Optical Writing Apparatus and Image Forming Apparatus Asamura Patent Office (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
<u>Due Date: 10/30/2005</u> 16869S-161000US (Pat)	<u>Missing Parts Deadline</u>	<u>Editing Method and Recording and Reproducing Device</u> Asamura Patent Office (for Hitachi, Ltd.)	<u>11/203457</u> <u>8/11/2005</u>	<u>US</u> <u>Pending</u>	<u>RCC - RCC</u>
<u>Due Date: 10/31/2005</u> 16869N-089000US (Pat)	<u>Response to Office Action (2nd Extension)</u>	<u>Directly Modulated Optical Module and Method for Driving Semiconductor Laser Included Therein</u> Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	<u>10/642373</u> <u>8/15/2003</u>	<u>US</u> <u>Pending</u>	<u>RCC - RCC</u>
<u>Due Date: 11/01/2005</u> 010327-010100US (Pat)	<u>Target Filing Date - 3 mo. Reminder original target filing date 8-1-05</u>	<u>Efficient Partial Key Lookup Algorithm in AVL Trees</u> Network Equipment Technologies, Inc.		<u>US</u> <u>Not yet filed</u>	<u>RCC - RCC</u>
<u>Due Date: 11/01/2005</u> 021206-000130US (Pat)	<u>Target Filing Date - 5 mo. Reminder original target filing date 6-1-05</u>	<u>Enhanced Smart Card With Rotating Storage</u> StorCard, Inc.		<u>US</u> <u>Not yet filed</u>	<u>RCC - RCC</u>
<u>Due Date: 11/01/2005</u> 16869N-104800US (Pat)	<u>Response to Office Action</u>	<u>Array-Type Disk Apparatus Preventing Data Lost With 2 Disk Drives Failure In the Same RAID Group, the Preventing Programming and Said Method</u> Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	<u>10/775702</u> <u>2/9/2004</u>	<u>US</u> <u>Pending - Published</u>	<u>RCC - RCC</u>
<u>Due Date: 11/01/2005</u> 16869P-007420US (Pat)	<u>Target Filing Date - 4 mo. Reminder original target filing date 7-1-05</u>	<u>Control System and Method of Controlling Information Written into Storage Media</u> TMI Associates		<u>US</u> <u>Not yet filed</u>	<u>RCC - RCC</u>
<u>Due Date: 11/01/2005</u> 16869S-046110US (Pat)	<u>1-mo. to publication Notice of New/Revised publication 08/25/05 (received 09/06/05)</u>	<u>Storage System Having Means for Acquiring Execution Information of Database Management System</u> Asamura Patent Office (for Hitachi, Ltd.)	<u>11/182281</u> <u>7/14/2005</u>	<u>US</u> <u>Pending</u>	<u>RCC - RCC</u>
<u>Due Date: 11/02/2005</u> 16869N-049200US (Pat)	<u>Target Filing Date - 4 mo. Reminder original target filing date 7-2-05</u>	<u>Plasma Display Panel Driving Method, Driving Circuit & Image Displaying Device</u> Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)		<u>US</u> <u>Not yet filed</u>	<u>RCC - RCC</u>

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/02/2005 16869N-160800US (Pat)	Missing Parts Deadline	Image Display Apparatus, as Well as, Fresnel Lens Sheet and Screen To Be Used Therein Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	11/200354 8/8/2005	US Pending	RCC - RCC
Due Date: 11/02/2005 16869S-082100US (Pat)	Response to Office Action	Information Recording and Reproducing Apparatus Asamura Patent Office (for Hitachi, Ltd.	10/442530 5/20/2003	US Pending - Published	RCC - RCC
Due Date: 11/02/2005 16869S-083300US (Pat)	Response to Office Action	Data Conversion System Asamura Patent Office (for Hitachi, Ltd.	10/452166 5/30/2003	US Pending - Published	RCC - RCC
Due Date: 11/03/2005 16869B-0115500US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 8-3-05	Data Discovery and Location Management Hitachi, Ltd.		US Not yet filed	RCC - RCC
Due Date: 11/04/2005 013843-008300US (Pat)	Non-Provisional Target Filing Date Disclosure indicates invention published 07/27/05; no foreign filing	Multi-Spectral Imaging Implementation Using Color Store Regions in TDI Applications Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/05/2005 16869P-010600US (Pat)	Issue Fee Patent Term Adjustment: 755 days, Client Requests No Additional PTA Calculation; Check re: filing continuation/division	Packet Transmitting and Receiving Method and Apparatus Therefor TMI Associates	09/642612 8/17/2000	US Pending	RCC - RCC
Due Date: 11/05/2005 16869S-043500US (Pat)	Response to Office Action (1st Extension)	Method and Apparatus for Classifying Document Information Asamura Patent Office (for Hitachi, Ltd.	10/081488 2/20/2002	US Pending - Published	RCC - RCC
Due Date: 11/06/2005 025991-001400US (Pat)	Response to Final Office Action (Final Deadline)	Assembly Language Code Compilation for an Instruction- Set Architecture Containing New Instructions Using the Prior...	09/747824 12/22/2000	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Atty's
Due Date: 11/06/2005 025991-001400 US (Pat)	Notice of Appeal (Final)	Assembly Language Code Compilation for an Instruction Set Architecture Containing New Instructions Using the Prior... Renesas Technology Corporation	09/747824 12/22/2000	US Pending Published	RCC - RCC
Due Date: 11/06/2005 12172S-006700GB (Pat)	Working Requirement (GB)	METHOD & APPARATUS FOR DYNAMICALLY INTERPRETING DRAWING COMMANDS Intergraph Hardware Technologies Company	96106926.7 5/2/1996 GB 0741372 11/6/2002	United Kingdom Granted	RCC - RCC SYP

Prosecution Docket Report

For: Robert C. Colwell

Country: For All Countries

Start Date: 10/14/05

End Date: 11/13/05

Date Type: Both Due and Reminder Dates

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App.- Reg No Filing - Issue-Date	Country Status	Bill - Resp Party Other-Attys
Due Date: 10/14/2005 022402-000100US (Pat)	Target Filing Date	Billaway Invention Billaway, Inc.		US Not yet filed	RCC - RCC
Due Date: 10/14/2005 16869P-007200US (Pat)	Response-2nd Office Action (1st Ext)	Network Measurement Controlling System Apparatus and Method Hitachi Ltd.	09/571003 5/15/2000	US Pending	RCC - RCC
Due Date: 10/15/2005 00939A-037020US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-15-05	NONVOLATILE MEMORY INTERFACE PROTOCOL FOR IMPROVED SYSTEMS PERFORMANCE Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 10/15/2005 021498-002900US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-15-05	Method of Treating a Substrate to Create a Predetermined Surface Profile CSIRO Telecommunications and Industrial Physics		US Not yet filed	RCC - RCC
Due Date: 10/16/2005 00939A-045900US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-16-05	MODULAR HANDSET/USER TERMINAL FOR WIRELESS COMMUNICATION Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 10/16/2005 018087-000100US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-16-05	JAVA-BASED TOOL KIT FOR CREATING WEB PAGES ISARDA, INC.		US Not yet filed	RCC - RCC
Due Date: 10/16/2005 16869S-055100US (Pat)	Response to Office Action (1st Extension)	Time Information Display System Asamura Patent Office (for Hitachi, Ltd.	10/213536 8/6/2002	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/17/2005 16869P-009710US (Pat)	Response to Office Action (2nd Extension)	Phase Frequency Synchronization Circuitry and Optical Receiver Hitachi Ltd.	10/436802 5/12/2003	US Pending - Published	RCC - RCC
Due Date: 10/17/2005 16869P-112000US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-17-05	Remote Copy Network Hitachi Ltd.		US Not yet filed	RCC - RCC
Due Date: 10/17/2005 16869Z-168800US (Pat)	Target Filing Date Target Filing Date 10/17/05	Computer System; Storage System and Method for Extending Volume Capacity Numagata & Sumiyoshi, Int'l Patent Office (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC
Due Date: 10/18/2005 025613-000110US (Pat)	Target Filing Date	Method and System for Placing a Bid and Receiving the Results of that Bid Via a Communications Network CrewPairings, Inc.		US Not yet filed	RCC - RCC
Due Date: 10/18/2005 16869N-EL1400US (Pat)	Response to Office Action	Projection Type Image Display Device Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/809003 3/24/2004	US Pending - Published	RCC - RCC
Due Date: 10/18/2005 16869S-038700US (Pat)	Response to Office Action (2nd Extension)	Method for Supporting the Orders Received of Transformer Asamura Patent Office (for Hitachi, Ltd.)	10/006684 12/7/2001	US Pending - Published	RCC - RCC
Due Date: 10/19/2005 013843-005800US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Instant Color Image Capture Technique Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-005900US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Two-Story Selenium-Silicon CCD Very High Resolution X-Ray Imager Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-006000US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Manufacturing Method for a Multi-Chip X-Ray Image Sensor Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-006100US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Temporary Noise Suppression Memory Circuit for Analog Integrating Detectors Which Utilize Signal Over Sampling Fairchild Imaging		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/19/2005 013843-006200US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	High Resolution Hyperspectral Single Linear Image Sensor Array Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-006300US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Stress Relief & Edge Passivation Structure Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-006500US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Image Interpolation & Filtering Algorithm for Matrix for Monochrome & Color Imaging Application Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-006600US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	A CCD Sensor for Space Applications Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-006700US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Variable Optical-Weight Coded Black & White & Color CCD Image Sensor & Image Processing Algorithm Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-006800US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Mosaic Image Sensor With Shaped Fiber Optics Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-007000US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Single Strobe & Multi-Light Source Imaging Camera With Coded Image Sensor for 3D Information Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-007100US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Cinema Motion Picture Sequence & Slow Framing, High Cinema Resolution Camera for RECCE, Animation, Cinema Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-007200US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Redundant Staggered TDI CCD Arrays Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-007300US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Sequential Imager with Pseudorandom Pixel Layout Fairchild Imaging		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/FM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/19/2005 013843-007400US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Coder Image Sensor with Exposure Control Interface & Scene Super-Nyquist Sampling Capability Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-007500US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Gazebo Lamp Artificial Light Source Corner Connector Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-007600US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Dual Energy X-Ray Imaging System for Bone Densitometry Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-007800US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Home Plate Shaped Solid-State Imager Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 013843-007900US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-19-05	Integrated Image Sensor & Flip Mirror Assembly Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/19/2005 16869S-104600US (Pat)	Response to Office Action	Terminal Device, Service Providing Server, and RF Tag Sheet Asamura Patent Office (for Hitachi, Ltd.	10/770785 2/2/2004	US Pending - Published	RCC - RCC
Due Date: 10/20/2005 16869B-028110US (Pat)	Notice of Appeal (Final)	Storage Device with I/O Counter for Partial Data Reallocation Hitachi, Ltd.	10/665893 9/19/2003	US Pending	RCC - RCC
Due Date: 10/20/2005 16869P-071700US (Pat)	Notice of Appeal (1st Ext.)	Electronic Device Hitachi Ltd.	10/384308 3/7/2003	US Pending - Published	RCC - RCC
Due Date: 10/20/2005 16869P-071700US (Pat)	Response to Final Office Action (1st Extension)	Electronic Device Hitachi Ltd.	10/384308 3/7/2003	US Pending - Published	RCC - RCC
Due Date: 10/20/2005 16869S-023200US (Pat)	Response to Office Action (2nd Extension)	Method and System for Financially Intermediating Transaction of Products Asamura Patent Office (for Hitachi, Ltd.	09/796775 2/28/2001	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
<u>Due Date: 10/20/2005</u> 16869S-052910US (Pat)	<u>Cont./CIP/Div. Target Filing Date</u> <u>Original Target Filing Date: 10/20/05</u>	<u>Method and System of Database</u> <u>Management for Replica</u> <u>Database</u> Asamura Patent Office (for Hitachi, Ltd.		US Not yet filed	RCC - RCC
<u>Due Date: 10/21/2005</u> 021206-000910US (Pat)	<u>Target Filing Date - 6 mo. Reminder</u> <u>original target filing date 4-21-05</u>	<u>Secure and Portable Data</u> <u>Communicator and Viewer</u> StorCard, Inc.		US Not yet filed	RCC - RCC
<u>Due Date: 10/21/2005</u> 021206-001010US (Pat)	<u>Target Filing Date - 6 mo. Reminder</u> <u>original target filing date 4-21-05</u>	<u>Hierarchical Storage</u> <u>Management of Encrypted Data</u> <u>Files</u> StorCard, Inc.		US Not yet filed	RCC - RCC
<u>Due Date: 10/21/2005</u> 16869S-111700US (Pat)	<u>Status Check</u>	<u>Laser Power Calibration</u> <u>Method for an Optical Disk</u> <u>Apparatus</u> Asamura Patent Office (for Hitachi, Ltd.	10/808922 3/24/2004	US Pending - Published	RCC - RCC
<u>Due Date: 10/22/2005</u> 16869S-041000US (Pat)	<u>Response to Office Action</u>	<u>Method and Apparatus for</u> <u>Executing Java Application</u> <u>Program</u> Asamura Patent Office (for Hitachi, Ltd.	10/052423 1/17/2002	US Pending - Published	RCC - RCC
<u>Due Date: 10/23/2005</u> 12172H-005210US (Pat)	<u>Target Filing Date - 3 mo. Reminder</u> <u>original target filing date 7-23-05</u>	<u>CMOS Circuit for Implementing</u> <u>Boolean Functions</u> <u>Intergraph Hardware Technologies</u> Co.		US Not yet filed	RCC - RCC
<u>Due Date: 10/24/2005</u> 26869T-153000US (Pat)	<u>Target Filing Date - 4 mo. Reminder</u> <u>original target filing date 6-24-05</u>	<u>Disk Array Device and Control</u> <u>Method-Therefor</u> TMI Associates (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC
<u>Due Date: 10/25/2005</u> 021111-000500US (Pat)	<u>Response to Office Action</u>	<u>Idle Power Reduction for State</u> <u>Machines</u> Telairity Semiconductor, Inc.	10/284623 10/30/2002	US Pending - Published	RCC - RCC
<u>Due Date: 10/25/2005</u> 025613-000100US (Pat)	<u>Foreign Filing Deadline</u> <u>client decided to file a PCT per RCC</u> <u>10/13/05; 2wk email reminder sent</u> <u>10/13/05; fr notification letter sent to</u> <u>RCC for signature 8/03/05 & 9/19/05</u>	<u>Method and System for Placing</u> <u>a Bid and Receiving the Results</u> <u>of that Bid Via a</u> <u>Communications Network</u> CrewPairings, Inc.	60/622123 10/25/2004	US Pending	RCC - RCC RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/25/2005 025613-000100US (Pat)	File Non-Provisional Application	Method and System for Placing a Bid and Receiving the Results of that Bid Via a Communications Network CrewPairings, Inc.	60/622123 10/25/2004	US Pending	RCC - RCC RCC
Due Date: 10/25/2005 16869S-174100US (Pat)	Target Filing Date - 6 mo. Reminder original target filing date 4-25-05	Reproducing Apparatus and Recording/Reproducing Apparatus Asamura Patent Office (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC
Due Date: 10/26/2005 16869B-036500US (Pat)	Response to Office Action	Storage System for Content Distribution Hitachi, Ltd.	10/104779 3/21/2002	US Pending - Published	RCC - RCC
Due Date: 10/26/2005 16869E-082620US (Pat)	Status Check (Letters Patent Received?)	Process Depending On Plasma Discharges Sustained By Inductive Coupling Hitachi Kokusai Electric Inc.	08/748746 11/18/1996 6858112 2/22/2005	US Granted	RCC - RCC
Due Date: 10/26/2005 16869N-041200US (Pat)	Response to Office Action (2nd Extension)	Method for Non-Destructive Inspection, Apparatus Thereof and Digital Camera System Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/057562 1/25/2002	US Pending - Published	RCC - RCC
Due Date: 10/27/2005 013843-004100US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-27-05	Intra-Oral X-Ray CCD Imager with Chamfered Corners Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/27/2005 16869N-061000US (Pat)	Response to Final Office Action	Information Recording Method and Information Recording Apparatus Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/268570 10/9/2002	US Pending - Published	RCC - RCC
Due Date: 10/27/2005 16869N-061000US (Pat)	Notice of Appeal	Information Recording Method and Information Recording Apparatus Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/268570 10/9/2002	US Pending - Published	RCC - RCC

Date Client/Matter: (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/27/2005 16869N-075800US (Pat)	Issue Fee Patent Term Adjustment: 0 days, Client Requests No Additional PTA Calculation; Check re: filing continuation/division	Mobile Terminal and Navigation System Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/383913 3/7/2003	US Pending - Published	RCC - RCC
Due Date: 10/27/2005 16869P-034700US (Pat)	Notice of Appeal (1st Ext.)	Method and System for Storing and Managing Electronic Mail Hitachi Ltd.	10/167011 6/10/2002	US Pending - Published	RCC - RCC
Due Date: 10/27/2005 16869P-058500US (Pat)	Response to Office Action (1st Extension)	Network Storage System and Control Method Hitachi Ltd.	10/251154 9/20/2002	US Pending - Published	RCC - RCC
Due Date: 10/27/2005 16869S-051300US (Pat)	Response to Office Action	Method, Apparatus, and System, Computer Program, and Computer Program Product for Network Management Asamura Patent Office (for Hitachi, Ltd.)	10/152545 5/20/2002	US Pending - Published	RCC - RCC
Due Date: 10/27/2005 16869S-058900US (Pat)	Response to Final Office Action	Data Mapping Management Apparatus Asamura Patent Office (for Hitachi, Ltd.)	10/236216 9/5/2002	US Pending - Published	RCC - RCC
Due Date: 10/27/2005 16869S-058900US (Pat)	Notice of Appeal	Data Mapping Management Apparatus Asamura Patent Office (for Hitachi, Ltd.)	10/236216 9/5/2002	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 011775-006400DE (Pat)	End Opposition Period	OVERVOLTAGE CLAMP & DESATURATION DETECTION CIRCUIT Ixys Corporation	P19600808.5 1/11/1996 7/28/2005	Germany Granted	RCC - RCC
Due Date: 10/28/2005 021206-001100US (Pat)	File Non-Provisional Application	Latch in a Flexible Magnetic Storage Card StorCard, Inc.	60/623315 10/28/2004	US Pending	RCC - RCC RCC
Due Date: 10/28/2005 021206-001100US (Pat)	Foreign Filing Deadline rec'd instructions not to foreign file 9/20/05; ff notification letter sent to RCC for signature 8/03/05 & 9/20/05	Latch in a Flexible Magnetic Storage Card StorCard, Inc.	60/623315 10/28/2004	US Pending	RCC - RCC RCC

Date Client/Matter: (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date:	Country Status	Bill - Resp Party Other Attys
Due Date: 10/28/2005 16869B-018700US (Pat)	Response to Office Action	Method & Apparatus for Resource Allocation in Network Router & Switch Hitachi, Ltd.	09/925182 8/8/2001	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869N-044700US (Pat)	Resp-1 mo. Restriction Requirement	Information Recording Apparatus and Information Recording Method Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/087514 2/28/2002	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869P-048700US (Pat)	Response to Office Action	Information-Receiving System and Information Receiving Terminal Hitachi Ltd.	10/138106 5/3/2002	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869P-071500US (Pat)	Response Notice of Non-Responsive Amendment 09/28/05 (received 09/30/05) Extensions of Time Available Under 37 CFR 1.136(a)	Circuit Board and Electronic Device, and Method of Manufacturing Same Hitachi Ltd.	10/371303 2/20/2003	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869S-059000US (Pat)	Response to Final Office Action (1st Extension)	System and Method for Database Query Optimization Asamura Patent Office (for Hitachi, Ltd.	10/236407 9/5/2002	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869S-059000US (Pat)	Notice of Appeal (1st Ext.)	System and Method for Database Query Optimization Asamura Patent Office (for Hitachi, Ltd.	10/236407 9/5/2002	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869S-108900US (Pat)	Response to Office Action	Storage Device Asamura Patent Office (for Hitachi, Ltd.	10/795049 3/3/2004	US Pending - Published	RCC - RCC
Due Date: 10/29/2005 012752-000500US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-29-05	ROTARY SCANNER Axon Instruments, Inc.		US Not yet filed	RCC - RCC
Due Date: 10/29/2005 021603-000100US (Pat)	2nd Notice of Appeal	System and Methods for Facilitating Negotiations for Supply Chain Control elnovate, Inc.	10/125688 4/17/2002	US Pending - Published	RCC - RCC
Due Date: 10/29/2005 021603-000100US (Pat)	Response-2nd Final Office Action	System and Methods for Facilitating Negotiations for Supply Chain Control elnovate, Inc.	10/125688 4/17/2002	US Pending - Published	RCC - RCC

Date Client/Matter: (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/29/2005 16869S-1529000US (Pat)	Priority Document	Semiconductor Device Asamura Patent Office (for Hitachi, Ltd.)	11/17/2007 6/29/2005	US Pending	RCC - RCC
Due Date: 10/30/2005 00939A-046400US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-30-05	COLUMN SWITCH IN SEMICONDUCTOR MEMORY Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 10/30/2005 16869P-121400US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-30-05	Optical Writing Apparatus and Image Forming Apparatus Asamura Patent Office (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC
Due Date: 10/31/2005 16869N-089000US (Pat)	Response to Office Action (2nd Extension)	Directly Modulated Optical Module and Method for Driving Semiconductor Laser Included Therein Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/642373 8/15/2003	US Pending	RCC - RCC
Due Date: 11/01/2005 010327-010100US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 8-1-05	Efficient Partial Key Lookup Algorithm in AVL Trees Network Equipment Technologies, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/01/2005 021206-000130US (Pat)	Target Filing Date - 5 mo. Reminder original target filing date 6-1-05	Enhanced Smart Card With Rotating Storage StorCard, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/01/2005 16869N-104800US (Pat)	Response to Office Action	Array-Type Disk Apparatus Preventing Data Lost With 2 Disk Drives Failure In the Same RAID Group, the Preventing Programming and Said Method Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/775702 2/9/2004	US Pending Published	RCC - RCC
Due Date: 11/01/2005 16869P-007420US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-1-05	Control System and Method of Controlling Information Written into Storage Media Hitachi Ltd.		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/01/2005 16869S-04610US (Pat)	1-mo. to publication Notice of New/Revised publication 08/25/05 (received 09/06/05)	Storage System Having Means for Acquiring Execution Information of Database Management System Asamura Patent Office (for Hitachi, Ltd.)	11/182281 7/14/2005	US Pending	RCC - RCC
Due Date: 11/02/2005 16869N-049200US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-2-05	Plasma Display Panel Driving Method, Driving Circuit & Image Displaying Device Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC
Due Date: 11/02/2005 16869S-082100US (Pat)	Response to Office Action	Information Recording and Reproducing Apparatus Asamura Patent Office (for Hitachi, Ltd.)	10/442530 5/20/2003	US Pending - Published	RCC - RCC
Due Date: 11/02/2005 16869S-083300US (Pat)	Response to Office Action	Data Conversion System Asamura Patent Office (for Hitachi, Ltd.)	10/452166 5/30/2003	US Pending - Published	RCC - RCC
Due Date: 11/03/2005 16869B-0115500US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 8-3-05	Data Discovery and Location Management Hitachi, Ltd.		US Not yet filed	RCC - RCC
Due Date: 11/03/2005 16869S-019510US (Pat)	Resp-1 mo. Restriction Requirement	Apparatus and Method for Recording and Reproducing Information Asamura Patent Office (for Hitachi, Ltd.)	09/851599 5/8/2001	US Pending - Published	RCC - RCC
Due Date: 11/04/2005 013843-008300US (Pat)	Non-Provisional Target Filing Date Disclosure indicates invention published 07/27/05; no foreign filing	Multi-Spectral Imaging Implementation Using Color Store Regions in FDI Applications Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/05/2005 16869P-010600US (Pat)	Issue Fee Patent Term Adjustment: 755 days, Client Requests No Additional PTA Calculation; Check re: filing continuation/division	Packet Transmitting and Receiving Method and Apparatus Therefor Hitachi Ltd.	09/642612 8/17/2000	US Pending	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/06/2005 025991-001400US (Pat)	Response to Final Office Action (Final Deadline)	Assembly Language Code Compilation for an Instruction- Set Architecture Containing New Instructions Using the Prior... Renesas Technology Corporation	09/747824 12/22/2000	US Pending - Published	RCC - RCC
Due Date: 11/06/2005 025991-001400US (Pat)	Notice of Appeal (Final)	Assembly Language Code Compilation for an Instruction- Set Architecture Containing New Instructions Using the Prior... Renesas Technology Corporation	09/747824 12/22/2000	US Pending - Published	RCC - RCC
Due Date: 11/06/2005 12172S-006700GB (Pat)	Working Requirement (GB)	METHOD & APPARATUS FOR DYNAMICALLY INTERPRETING DRAWING COMMANDS Intergraph Hardware Technologies Company	GB 0741372 11/6/2002 96106926.7 5/2/1996	United Kingdom Granted	RCC - RCC SYP
Due Date: 11/07/2005 16869N-073700US (Pat)	Response-2 mo. Office Action	Document Retrieval Method and Document Retrieval System Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/370829 2/21/2003	US Pending - Published	RCC - RCC
Due Date: 11/07/2005 16869P-161100US (Pat)	Missing Parts Deadline	Imaging Apparatus Hitachi Ltd.	11/208247 8/19/2005	US Pending	RCC - RCC
Due Date: 11/08/2005 00939A-079200US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-8-05	New Spacer Oxide Formation Method for Flash Memory Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 11/08/2005 022267-000300US (Pat)	Foreign Filing Deadline ff notification letter sent to RCC for signature 8/09/05 & 9/22/05	Method for Improving Demand Forecast Using Downstream Product Movement Information Truth Software, Inc.	60/626194 11/8/2004	US Pending	RCC - RCC RCC
Due Date: 11/08/2005 022267-000300US (Pat)	File Non-Provisional Application	Method for Improving Demand Forecast Using Downstream Product Movement Information Truth Software, Inc.	60/626194 11/8/2004	US Pending	RCC - RCC RCC
Due Date: 11/08/2005 16869P-019800US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-8-05	Multiprocessor System & Data Transmitting Method Hitachi Ltd.		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/08/2005 16869P-159000US (Pat)	Missing Parts Deadline	Recording Apparatus Hitachi Ltd.	11/207861 8/18/2005	US Pending	RCC - RCC
Due Date: 11/08/2005 16869S-053800US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-8-05	Firewall Apparatus Asamura Patent Office (for Hitachi, Ltd.		US Not yet filed	RCC - RCC
Due Date: 11/08/2005 16869S-090800US (Pat)	Response to Office Action (1st Extension) Interview Summary 09/13/05 (received 09/16/05)	Method for Accessing Distributed File System Asamura Patent Office (for Hitachi, Ltd.	10/645813 8/20/2003	US Pending	RCC - RCC
Due Date: 11/09/2005 000939-072300KR (Pat)	Request Examination (KR) - 3 Month Reminder	Pixel Layout in Cmos Image Sensor Hynix Semiconductor Inc.	1020010006381 2/9/2001	Korea (South) Pending	RCC - RCC
Due Date: 11/09/2005 010327-003400US (Pat)	Response to Office Action	Method and Apparatus for Random Early Detection of Data Packets of Network Connections, Network Equipment Technologies, Inc.	10/045187 10/18/2001	US Pending	RCC - RCC
Due Date: 11/09/2005 16869B-034600US (Pat)	Response to Final Office Action	Layered Computer System With Thin Clients Hitachi, Ltd.	10/247150 9/18/2002	US Pending - Published	RCC - RCC
Due Date: 11/09/2005 16869B-034600US (Pat)	Notice of Appeal	Layered Computer System With Thin Clients Hitachi, Ltd.	10/247150 9/18/2002	US Pending - Published	RCC - RCC
Due Date: 11/09/2005 16869P-048200US (Pat)	Notice of Appeal	Memory Media Archiving System and Operating Method Therefor Hitachi, Ltd.	10/127975 4/22/2002	US Pending - Published	RCC - RCC
Due Date: 11/09/2005 16869P-048200US (Pat)	Response to Final Office Action	Memory Media Archiving System and Operating Method Therefor Hitachi Ltd.	10/127975 4/22/2002	US Pending - Published	RCC - RCC
Due Date: 11/10/2005 000939-012700US (Pat)	Annuity: Next clt shall handle per YooMi, do not send further reminders 6/8/05-fjc. e- mailed clt 6/7/05-fjc.	Achromatic Expansion Prism For Magneto-Optical Drive Hynix Semiconductor Inc.	07/975918 11/13/1992 5311496 5/10/1994	US Granted	RCC - RCC
Due Date: 11/10/2005 013843-004300US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-10-05	Center Readout Intra-Oral Image Sensor Fairchild Imaging		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp-Party Other Attys
Due Date: 11/10/2005 013843-004400US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-10-05	Digital Sensor Cassette for Mammography Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/10/2005 16869K-073400US (Pat)	Response to Final Office Action	File Backup Method and Storage Apparatus, Computer Program Therefor and Computer- Readable Medium Containing the Same Isshiki International Patent Office	10/370836 2/21/2003	US Pending - Published	RCC - RCC
Due Date: 11/10/2005 16869K-073400US (Pat)	Notice of Appeal	File Backup Method and Storage Apparatus, Computer Program Therefor and Computer- Readable Medium Containing the Same Isshiki International Patent Office	10/370836 2/21/2003	US Pending - Published	RCC - RCC
Due Date: 11/10/2005 16869K-079700US (Pat)	Issue Fee Patent Term Adjustment: 296 days, Client Requests No Additional PTA Calculation; Check re: filing continuation/division	Method, System, and Storage Controller for Controlling Shared Memories Isshiki International Patent Office	10/428198 4/30/2003	US Pending - Published	RCC - RCC
Due Date: 11/10/2005 16869N-065300US (Pat)	Issue Fee Patent Term Adjustment: 373 days, Client Requests No Additional PTA Calculation; Check re: filing continuation/division	Cellular Phone Terminal Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/286138 10/31/2002	US Pending - Published	RCC - RCC
Due Date: 11/11/2005 021111-001400US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-11-05	Vector SRAM Telairity Semiconductor, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/11/2005 021111-001700US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-11-05	Video Switch Matrix and Control Telairity Semiconductor, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/11/2005 16869K-076500US (Pat)	Response to Office Action	Method for Detecting Fault Between Storage Devices, and Storage Device Used for the Same Isshiki International Patent Office	10/402686 3/28/2003	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/11/2005 16869N-123100US (Pat)	Issue Fee Patent Term Adjustment: 0 days, Client Requests No Additional PTA Calculation; Check re: filing continuation/division	Discharge Lamp Lighting Device Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/888241 7/8/2004	US Pending - Published	RCC - RCC JDC
Due Date: 11/11/2005 16869S-052500US (Pat)	Response-2nd Office Action	Memory Apparatus Asamura Patent Office (for Hitachi, Ltd.)	10/172096 6/13/2002	US Pending - Published	RCC - RCC
Due Date: 11/12/2005 16869K-034000US (Pat)	Response-2nd Office Action (1st Ext)	Storage Area Network System; Storage and Data Transfer; Amount Monitoring Apparatus Isshiki International Patent Office	09/949264 9/6/2001	US Pending - Published	RCC - RCC
Due Date: 11/12/2005 16869N-051200US (Pat)	Response to Office Action (1st Extension)	Data Processing Method, Data Processing Apparatus, and Data Processing Program Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/152439 5/20/2002	US Pending - Published	RCC - RCC
Due Date: 11/12/2005 16869S-040900US (Pat)	Issue Fee Patent Term Adjustment: 533 days, Client Requests No Additional PTA Calculation; Check re: filing continuation/division	Method and Apparatus for Managing Surface Image of Thin Film Device, and Method and Apparatus for Manufacturing Thin Film Device Using the Same Asamura Patent Office (for Hitachi, Ltd.)	10/054274 1/18/2002	US Pending - Published	RCC - RCC
Due Date: 11/13/2005 16869N-075700US (Pat)	Notice of Appeal (1st Ext.)	Optical Transmission Module Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/384509 3/6/2003	US Pending - Published	RCC - RCC
Due Date: 11/13/2005 16869N-075700US (Pat)	Response to Final Office Action (1st Extension)	Optical Transmission Module Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/384509 3/6/2003	US Pending - Published	RCC - RCC

Prosecution Docket Report

For: Robert C. Colwell

Country: For All Countries

Start Date: 10/21/05

End Date: 11/20/05

Date Type: Both Due and Reminder Dates

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/21/2005 021206-000910US (Pat)	Target Filing Date - 6 mo. Reminder original target filing date 4-21-05	Secure and Portable Data Communicator and Viewer StorCard, Inc.		US Not yet filed	RCC - RCC
Due Date: 10/21/2005 021206-001010US (Pat)	Target Filing Date - 6 mo. Reminder original target filing date 4-21-05	Hierarchical Storage Management of Encrypted Data Files StorCard, Inc.		US Not yet filed	RCC - RCC
Due Date: 10/21/2005 16869S-111700US (Pat)	Status Check	Laser Power Calibration Method for an Optical Disk Apparatus Asamura Patent Office (for Hitachi, Ltd.	10/808922 3/24/2004	US Pending - Published	RCC - RCC
Due Date: 10/22/2005 16869S-041000US (Pat)	Response to Office Action	Method and Apparatus for Executing Java Application Program Asamura Patent Office (for Hitachi, Ltd.	10/052423 1/17/2002	US Pending - Published	RCC - RCC
Due Date: 10/23/2005 12172H-005210US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-23-05	CMOS Circuit for Implementing Boolean Functions Intergraph Hardware Technologies Co.		US Not yet filed	RCC - RCC
Due Date: 10/24/2005 16869K-170900US (Pat)	Target Filing Date Original Target Filing Date 10/24/05	Method and System for Managing Programs in Data- Processing System Toshiba International Patent Office		US Not yet filed	RCC - RCC
Due Date: 10/24/2005 26869T-153000US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 6-24-05	Disk Array Device and Control Method Therefor TMI Associates (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/25/2005 021111-000500US (Pat)	Response to Office Action	Idle Power Reduction for State Machines Telairity Semiconductor, Inc.	10/284623 10/30/2002	US Pending - Published	RCC - RCC
Due Date: 10/25/2005 025613-000100US (Pat)	File Non-Provisional Application	Method and System for Placing a Bid and Receiving the Results of that Bid Via a Communications Network Crewing Solutions LLC	60/622123 10/25/2004	US Pending	RCC - RCC RCC
Due Date: 10/25/2005 025613-000100US (Pat)	Foreign Filing Deadline client decided to file a PCT per RCC 10/13/05; 2wk email reminder sent 10/13/05; ff notification letter sent to RCC for signature 8/03/05 & 9/19/05	Method and System for Placing a Bid and Receiving the Results of that Bid Via a Communications Network Crewing Solutions LLC	60/622123 10/25/2004	US Pending	RCC - RCC RCC
Due Date: 10/25/2005 16869S-174100US (Pat)	Target Filing Date - 6 mo. Reminder original target filing date 4-25-05	Reproducing Apparatus and Recording/Reproducing Apparatus Asamura Patent Office (for Hitachi, Ltd.		US Not yet filed	RCC - RCC
Due Date: 10/26/2005 16869B-036500US (Pat)	Response to Office Action	Storage System for Content Distribution Hitachi, Ltd.	10/104779 3/21/2002	US Pending - Published	RCC - RCC
Due Date: 10/26/2005 16869E-082620US (Pat)	Status Check (Letters Patent Received?)	Process Depending On Plasma Discharges Sustained By Inductive Coupling Hitachi Kokusai Electric Inc.	08/748746 11/18/1996	US Granted	RCC - RCC
Due Date: 10/26/2005 16869N-041200US (Pat)	Response to Office Action (2nd Extension)	Method for Non-Destructive Inspection, Apparatus Thereof and Digital Camera System Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/057562 1/25/2002	US Pending - Published	RCC - RCC
Due Date: 10/27/2005 013843-004100US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-27-05	Intra-Oral X-Ray CCD Imager with Chamfered Corners Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 10/27/2005 16869N-061000US (Pat)	Notice of Appeal	Information Recording Method and Information Recording Apparatus Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/268570 10/9/2002	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/27/2005 16869N-061000US (Pat)	Response to Final Office Action	Information Recording Method and Information Recording Apparatus Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/268570 10/9/2002	US Pending - Published	RCC - RCC
Due Date: 10/27/2005 16869N-075800US (Pat)	Issue Fee Patent Term Adjustment: 0 days, Client Requests No Additional PTA Calculation; Check re: filing continuation/division	Mobile Terminal and Navigation System Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/383913 3/7/2003	US Pending - Published	RCC - RCC
Due Date: 10/27/2005 16869P-034700US (Pat)	Notice of Appeal (1st Ext.)	Method and System for Storing and Managing Electronic Mail Hitachi Ltd	10/167011 6/10/2002	US Pending - Published	RCC - RCC
Due Date: 10/27/2005 16869P-058500US (Pat)	Response to Office Action (1st Extension)	Network Storage System and Control Method Hitachi Ltd	10/251154 9/20/2002	US Pending - Published	RCC - RCC
Due Date: 10/27/2005 16869S-051300US (Pat)	Response to Office Action	Method, Apparatus, and System, Computer Program and Computer Program Product for Network Management Asamura Patent Office (for Hitachi, Ltd)	10/152545 5/20/2002	US Pending - Published	RCC - RCC
Due Date: 10/27/2005 16869S-058900US (Pat)	Response to Final Office Action	Data Mapping Management Apparatus Asamura Patent Office (for Hitachi, Ltd)	10/236216 9/5/2002	US Pending - Published	RCC - RCC
Due Date: 10/27/2005 16869S-058900US (Pat)	Notice of Appeal	Data Mapping Management Apparatus Asamura Patent Office (for Hitachi, Ltd)	10/236216 9/5/2002	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 011775-006400DE (Pat)	End Opposition Period	OVERVOLTAGE CLAMP & DESATURATION DETECTION CIRCUIT Ixys Corporation	P-19600808.5 1/11/1996 19600808 7/28/2005	Germany Granted	RCC - RCC
Due Date: 10/28/2005 021206-001100US (Pat)	File Non-Provisional Application	Latch in a Flexible Magnetic Storage Card StorCard, Inc.	60/623315 10/28/2004	US Pending	RCC - RCC RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No. Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/28/2005 021206-001100US (Pat)	Foreign Filing Deadline rec'd instructions not to foreign file 9/20/05; ff notification letter sent to RCC for signature 8/03/05 & 9/20/05	Latch in a Flexible Magnetic Storage Card StorCard, Inc.	60/623315 10/28/2004	US Pending	RCC - RCC RCC
Due Date: 10/28/2005 16869B-018700US (Pat)	Response to Office Action	Method & Apparatus for Resource Allocation in Network Router & Switch Hitachi, Ltd.	09/925182 8/8/2001	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869N-044700US (Pat)	Resp-1 mo. Restriction Requirement	Information-Recording Apparatus and Information- Recording Method Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/087514 2/28/2002	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869P-048700US (Pat)	Response to Office Action	Information Receiving System and Information Receiving Terminal Hitachi Ltd.	10/138106 5/3/2002	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869P-071500US (Pat)	Response Notice of Non-Responsive Amendment 09/28/05 (received 09/30/05) Extensions of Time Available Under 37 CFR 1.136(a)	Circuit Board and Electronic Device, and Method of Manufacturing Same Hitachi Ltd.	10/371303 2/20/2003	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869S-059000US (Pat)	Response to Final Office Action (1st Extension)	System and Method for Database Query Optimization Asamura Patent Office (for Hitachi, Ltd.)	10/236407 9/5/2002	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869S-059000US (Pat)	Notice of Appeal (1st Ext.)	System and Method for Database Query Optimization Asamura Patent Office (for Hitachi, Ltd.)	10/236407 9/5/2002	US Pending - Published	RCC - RCC
Due Date: 10/28/2005 16869S-108900US (Pat)	Response to Office Action	Storage Device Asamura Patent Office (for Hitachi, Ltd.)	10/795049 3/3/2004	US Pending - Published	RCC - RCC
Due Date: 10/29/2005 012752-000500US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-29-05	ROTARY SCANNER Axon Instruments, Inc.		US Not yet filed	RCC - RCC
Due Date: 10/29/2005 021603-000100US (Pat)	Response-2nd Final Office Action	System and Methods for Facilitating Negotiations for Supply Chain Control eInnovate, Inc.	10/125688 4/17/2002	US Pending - Published	RCC - RCC

Date Client/Matter: (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/29/2005 021603-000100US (Pat)	2nd Notice of Appeal	System and Methods for Facilitating Negotiations for Supply Chain Control Innovate, Inc.	10/125688 4/17/2002	US Pending - Published	RCC - RCC
Due Date: 10/29/2005 16869S-152900US (Pat)	Priority Document	Semiconductor Device Asamura Patent Office (for Hitachi, Ltd.	11/172207 6/29/2005	US Pending	RCC - RCC
Due Date: 10/30/2005 00939A-046400US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-30-05	COLUMN SWITCH IN SEMICONDUCTOR MEMORY Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 10/30/2005 16869P-121400US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-30-05	Optical Writing Apparatus and Image Forming Apparatus Asamura Patent Office (for Hitachi, Ltd.		US Not yet filed	RCC - RCC
Due Date: 10/31/2005 16869N-089000US (Pat)	Response to Office Action (2nd Extension)	Directly Modulated Optical Module and Method for Driving Semiconductor Laser Included Therein Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/642373 8/15/2003	US Pending	RCC - RCC
Due Date: 11/01/2005 010327-010100US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 8-1-05	Efficient Partial Key Lookup Algorithm in AVL Trees Network Equipment Technologies, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/01/2005 021206-000130US (Pat)	Target Filing Date - 5 mo. Reminder original target filing date 6-1-05	Enhanced Smart Card With Rotating Storage StorCard, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/01/2005 16869N-104800US (Pat)	Response to Office Action	Array-Type Disk Apparatus Preventing Data Lost With 2 Disk Drives Failure In the Same RAID Group, the Preventing Programming and Said Method Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/775702 2/9/2004	US Pending - Published	RCC - RCC
Due Date: 11/01/2005 16869P-007420US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-1-05	Control System and Method of Controlling Information Written into Storage Media Hitachi Ltd.		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/01/2005 16869S-046110US (Pat)	1-mo. to publication Notice of New/Revised publication 08/25/05 (received 09/06/05)	Storage System Having Means for Acquiring Execution Information of Database Management System Asamura Patent Office (for Hitachi, Ltd.	11/182281 7/14/2005	US Pending	RCC - RCC
Due Date: 11/02/2005 16869N-049200US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-2-05	Plasma Display Panel Driving Method, Driving Circuit & Image Displaying Device Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC
Due Date: 11/02/2005 16869S-082100US (Pat)	Response to Office Action	Information Recording and Reproducing Apparatus Asamura Patent Office (for Hitachi, Ltd.	10/442530 5/20/2003	US Pending - Published	RCC - RCC
Due Date: 11/02/2005 16869S-083300US (Pat)	Response to Office Action	Data Conversion System Asamura Patent Office (for Hitachi, Ltd.	10/452166 5/30/2003	US Pending - Published	RCC - RCC
Due Date: 11/03/2005 16869B-0115500US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 8-3-05	Data Discovery and Location Management Hitachi, Ltd.		US Not yet filed	RCC - RCC
Due Date: 11/03/2005 16869S-019510US (Pat)	Resp. 1-mo. Restriction Requirement	Apparatus and Method for Recording and Reproducing Information Asamura Patent Office (for Hitachi, Ltd.	09/851599 5/8/2001	US Pending - Published	RCC - RCC
Due Date: 11/04/2005 013843-008300US (Pat)	Non-Provisional Target Filing Date Disclosure indicates invention published 07/27/05; no foreign filing	Multi-Spectral Imaging Implementation Using Color Store Regions in TDI Applications Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/05/2005 16869P-010600US (Pat)	Issue Fee Patent Term Adjustment - 755 days Client Requests No. Additional PTA Calculation; Check re: filing continuation/division	Packet Transmitting and Receiving Method and Apparatus Therefor Hitachi Ltd.	09/642612 8/17/2000	US Pending	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/06/2005 025991-001400US (Pat)	Response to Final Office Action (Final Deadline)	Assembly Language Code Compilation for an Instruction- Set Architecture Containing New Instructions Using the Prior... Renesas Technology Corporation	09/747824 12/22/2000	US Pending - Published	RCC - RCC
Due Date: 11/06/2005 025991-001400US (Pat)	Notice of Appeal (Final)	Assembly Language Code Compilation for an Instruction- Set Architecture Containing New Instructions Using the Prior... Renesas Technology Corporation	09/747824 12/22/2000	US Pending - Published	RCC - RCC
Due Date: 11/06/2005 12172S-006700GB (Pat)	Working Requirement (GB)	METHOD & APPARATUS FOR DYNAMICALLY INTERPRETING DRAWING COMMANDS Intergraph Hardware Technologies Company	96106926.7 5/2/1996 GB 0741372 11/6/2002	United Kingdom Granted	RCC - RCC SYP
Due Date: 11/07/2005 16869N-073700US (Pat)	Response-2 mo. Office Action	Document Retrieval Method and Document Retrieval System Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/370829 2/21/2003	US Pending - Published	RCC - RCC
Due Date: 11/07/2005 16869P-161100US (Pat)	Missing Parts Deadline	Imaging Apparatus Hitachi Ltd.	11/208247 8/19/2005	US Pending	RCC - RCC
Due Date: 11/08/2005 00939A-079200US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-8-05	New Spacer Oxide Formation Method for Flash Memory Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 11/08/2005 022267-000300US (Pat)	Foreign Filing Deadline ff notification letter sent to RCC for signature 8/09/05 & 9/22/05	Method for Improving Demand Forecast Using Downstream Product Movement Information Truth Software, Inc.	60/626194 11/8/2004	US Pending	RCC - RCC RCC
Due Date: 11/08/2005 022267-000300US (Pat)	File Non-Provisional Application	Method for Improving Demand Forecast Using Downstream Product Movement Information Truth Software, Inc.	60/626194 11/8/2004	US Pending	RCC - RCC RCC
Due Date: 11/08/2005 16869P-019800US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-8-05	Multiprocessor System & Data Transmitting Method Hitachi Ltd.		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No. Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/08/2005 16869S-053800US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-8-05	Firewell Apparatus Asamura Patent Office (for Hitachi, Ltd.		US Not yet filed	RCC - RCC
Due Date: 11/08/2005 16869S-090800US (Pat)	Response to Office Action (1st Extension) Interview Summary 09/13/05 (received 09/16/05)	Method for Accessing Distributed File System Asamura Patent Office (for Hitachi, Ltd.	10/645813 8/20/2003	US Pending - Published	RCC - RCC
Due Date: 11/09/2005 000939-072300KR (Pat)	Request Examination (KR) - 3 Month Reminder	Pixel Layout in Cmos Image Sensor Hynix-Semiconductor Inc.	1020010006381 2/9/2001	Korea (South) Pending	RCC - RCC
Due Date: 11/09/2005 010327-003400US (Pat)	Response to Office Action	Method and Apparatus for Random Early Detection of Data Packets of Network Connections Network Equipment Technologies, Inc.	10/045187 10/18/2001	US Pending	RCC - RCC
Due Date: 11/09/2005 16869B-034600US (Pat)	Response to Final Office Action	Layered Computer System With Thin Clients Hitachi, Ltd.	10/247150 9/18/2002	US Pending - Published	RCC - RCC
Due Date: 11/09/2005 16869B-034600US (Pat)	Notice of Appeal	Layered Computer System With Thin Clients Hitachi, Ltd.	10/247150 9/18/2002	US Pending - Published	RCC - RCC
Due Date: 11/09/2005 16869P-048200US (Pat)	Notice of Appeal	Memory Media Archiving System and Operating Method Therefor Hitachi Ltd.	10/127975 4/22/2002	US Pending - Published	RCC - RCC
Due Date: 11/09/2005 16869P-048200US (Pat)	Response to Final Office Action	Memory Media Archiving System and Operating Method Therefor Hitachi Ltd.	10/127975 4/22/2002	US Pending - Published	RCC - RCC
Due Date: 11/10/2005 000939-012700US (Pat)	Annuity: Next clt shall handle per YooMi, do not send further reminders: 6/8/05-fjc. e- mailed clt 6/7/05-fjc.	Achromatic Expansion Prism For Magneto-Optical Drive Hynix-Semiconductor Inc.	07/975918 11/13/1992 5311496 5/10/1994	US Granted	RCC - RCC
Due Date: 11/10/2005 013843-004300US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-10-05	Center Readout Intra-Oral Image Sensor Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/10/2005 013843-004400US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-10-05	Digital-Sensor Cassette for Mammography Fairchild Imaging		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No. Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
<u>Due Date: 11/10/2005</u> 16869K-073400US (Pat)	<u>Response to Final Office Action</u>	<u>File Backup Method and Storage Apparatus, Computer Program Therefor and Computer-Readable Medium Containing the Same</u> Isshiki International Patent Office	<u>10/370836</u> <u>2/21/2003</u>	<u>US</u> <u>Pending - Published</u>	<u>RCC - RCC</u>
<u>Due Date: 11/10/2005</u> 16869K-073400US (Pat)	<u>Notice of Appeal</u>	<u>File Backup Method and Storage Apparatus, Computer Program Therefor and Computer-Readable Medium Containing the Same</u> Isshiki International Patent Office	<u>10/370836</u> <u>2/21/2003</u>	<u>US</u> <u>Pending - Published</u>	<u>RCC - RCC</u>
<u>Due Date: 11/10/2005</u> 16869K-079700US (Pat)	<u>Issue Fee</u> <u>Patent Term Adjustment: 296 days, Client Requests No Additional PTA Calculation; Check re: filing continuation/division</u>	<u>Method, System, and Storage Controller for Controlling Shared Memories</u> Isshiki International Patent Office	<u>10/428198</u> <u>4/30/2003</u>	<u>US</u> <u>Pending - Published</u>	<u>RCC - RCC</u>
<u>Due Date: 11/10/2005</u> 16869N-065300US (Pat)	<u>Issue Fee</u> <u>Patent Term Adjustment: 373 days, Client Requests No Additional PTA Calculation; Check re: filing continuation/division</u>	<u>Cellular Phone Terminal</u> Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	<u>10/286138</u> <u>10/31/2002</u>	<u>US</u> <u>Pending - Published</u>	<u>RCC - RCC</u>
<u>Due Date: 11/11/2005</u> 021111-001400US (Pat)	<u>Target Filing Date - 4 mo. Reminder original target filing date 7-11-05</u>	<u>Vector SRAM</u> Telairity Semiconductor, Inc.		<u>US</u> <u>Not yet filed</u>	<u>RCC - RCC</u>
<u>Due Date: 11/11/2005</u> 021111-001700US (Pat)	<u>Target Filing Date - 4 mo. Reminder original target filing date 7-11-05</u>	<u>Video Switch Matrix and Control</u> Telairity Semiconductor, Inc.		<u>US</u> <u>Not yet filed</u>	<u>RCC - RCC</u>
<u>Due Date: 11/11/2005</u> 16869K-076500US (Pat)	<u>Response to Office Action</u>	<u>Method for Detecting Fault Between Storage Devices, and Storage Device Used for the Same</u> Isshiki International Patent Office	<u>10/402686</u> <u>3/28/2003</u>	<u>US</u> <u>Pending - Published</u>	<u>RCC - RCC</u>
<u>Due Date: 11/11/2005</u> 16869N-123100US (Pat)	<u>Issue Fee</u> <u>Patent Term Adjustment: 0 days, Client Requests No Additional PTA Calculation; Check re: filing continuation/division</u>	<u>Discharge Lamp Lighting Device</u> Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	<u>10/888241</u> <u>7/8/2004</u>	<u>US</u> <u>Pending - Published</u>	<u>RCC - RCC</u> <u>JDC</u>

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp-Party Other Attys
Due Date: 11/11/2005 16869S-052500US (Pat)	Response-2nd Office Action	Memory Apparatus Asamura Patent Office (for Hitachi, Ltd.	10/172096 6/13/2002	US Pending - Published	RCC - RCC
Due Date: 11/12/2005 16869S-040900US (Pat)	Issue Fee Patent Term Adjustment: 533 days, Client Requests No-Additional PTA Calculation, Check re-filing continuation/division	Method and Apparatus for Managing Surface Image of Thin Film-Device, and Method and Apparatus for Manufacturing Thin-Film-Device Using the Same. Asamura Patent Office (for Hitachi, Ltd.	10/054274 1/18/2002	US Pending - Published	RCC - RCC
Due Date: 11/13/2005 16869N-075700US (Pat)	Notice of Appeal (1st Ext.)	Optical Transmission Module Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/384509 3/6/2003	US Pending - Published	RCC - RCC
Due Date: 11/13/2005 16869N-075700US (Pat)	Response to Final Office Action (1st Extension)	Optical Transmission Module Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/384509 3/6/2003	US Pending - Published	RCC - RCC
Due Date: 11/13/2005 16869S-119900US (Pat)	Resp-1 mo. Restriction Requirement	Projection Lens Unit and Rear Projection Type Image Display System Asamura Patent Office (for Hitachi, Ltd.	10/865549 6/9/2004	US Pending - Published	RCC - RCC
Due Date: 11/14/2005 16869P-007200US (Pat)	Response-2nd Office Action (2nd Ext.)	Network Measurement Controlling System Apparatus and Method Hitachi Ltd.	09/571003 5/15/2000	US Pending	RCC - RCC
Due Date: 11/15/2005 00939A-037020US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-15-05	NONVOLATILE MEMORY INTERFACE PROTOCOL FOR IMPROVED SYSTEMS PERFORMANCE Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 11/15/2005 02149S-002900US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-15-05	Method of Treating a Substrate to Create a Predetermined Surface Profile CSIRO Telecommunications and Industrial Physics		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/15/2005 16869P-079900US (Pat)	1-mo. to publication Notice of New or Revised Projected Publication Date 09/22/05 (Received 09/30/05); Notice of New or Revised Projected Publication Date 02/03/05 (Received 02/16/05)	Recording Equipment and Recording Method Hitachi Ltd.	10/439614 5/15/2003	US Pending	RCC - RCC
Due Date: 11/15/2005 16869S-162600US (Pat)	Missing Parts Deadline	Display Apparatus Asamura Patent Office (for Hitachi, Ltd.	11/213144 8/25/2005	US Pending	RCC - RCC
Due Date: 11/15/2005 16869S-162700US (Pat)	Missing Parts Deadline	Display Apparatus Asamura Patent Office (for Hitachi, Ltd.	11/213075 8/26/2005	US Pending	RCC - RCC
Due Date: 11/16/2005 00939A-045900US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-16-05	MODULAR-HANDSET/USER TERMINAL FOR WIRELESS COMMUNICATION Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 11/16/2005 018087-000100US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-16-05	JAVA-BASED TOOL KIT FOR CREATING WEB PAGES ISARDA, INC.		US Not yet filed	RCC - RCC
Due Date: 11/17/2005 16869P-009710US (Pat)	Response to Office Action (Final Deadline)	Phase Frequency Synchronization Circuitry and Optical Receiver Hitachi Ltd.	10/436802 5/12/2003	US Pending - Published	RCC - RCC
Due Date: 11/17/2005 16869P-112000US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-17-05	Remote Copy Network Hitachi Ltd.		US Not yet filed	RCC - RCC
Due Date: 11/17/2005 16869S-043400US (Pat)	Response to Office Action	Trusted Computer System Asamura Patent Office (for Hitachi, Ltd.	10/081061 2/20/2002	US Pending - Published	RCC - RCC
Due Date: 11/19/2005 013843-005800US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Instant Color Image Capture Technique Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-005900US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Two-Story Selenium-Silicon CCD Very High Resolution X- Ray Imager Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-006000US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Manufacturing Method for a Multi-Chip X-Ray Image Sensor Fairchild Imaging		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
<u>Due Date: 11/19/2005</u> 013843-006100US (Pat)	<u>Target Filing Date - 2 mo. Reminder</u> <u>original target filing date 9-19-05</u>	<u>Temporary Noise Suppression</u> <u>Memory Circuit for Analog</u> <u>Integrating Detectors Which</u> <u>Utilize Signal-Over Sampling</u> Fairchild Imaging		US Not yet filed	RCC - RCC
<u>Due Date: 11/19/2005</u> 013843-006200US (Pat)	<u>Target Filing Date - 2 mo. Reminder</u> <u>original target filing date 9-19-05</u>	<u>High Resolution Hyperspectral</u> <u>Single Linear Image Sensor</u> Array Fairchild Imaging		US Not yet filed	RCC - RCC
<u>Due Date: 11/19/2005</u> 013843-006300US (Pat)	<u>Target Filing Date - 2 mo. Reminder</u> <u>original target filing date 9-19-05</u>	<u>Stress Relief & Edge Passivation</u> Structure Fairchild Imaging		US Not yet filed	RCC - RCC
<u>Due Date: 11/19/2005</u> 013843-006500US (Pat)	<u>Target Filing Date - 2 mo. Reminder</u> <u>original target filing date 9-19-05</u>	<u>Image Interpolation & Filtering</u> <u>Algorithm for Matrix for</u> <u>Monochrome & Color Imaging</u> Application Fairchild Imaging		US Not yet filed	RCC - RCC
<u>Due Date: 11/19/2005</u> 013843-006600US (Pat)	<u>Target Filing Date - 2 mo. Reminder</u> <u>original target filing date 9-19-05</u>	<u>A CCD Sensor for Space</u> Applications Fairchild Imaging		US Not yet filed	RCC - RCC
<u>Due Date: 11/19/2005</u> 013843-006700US (Pat)	<u>Target Filing Date - 2 mo. Reminder</u> <u>original target filing date 9-19-05</u>	<u>Variable Optical Weight Coded</u> <u>Black & White & Color CCD</u> <u>Image Sensor & Image</u> <u>Processing Algorithm</u> Fairchild Imaging		US Not yet filed	RCC - RCC
<u>Due Date: 11/19/2005</u> 013843-006800US (Pat)	<u>Target Filing Date - 2 mo. Reminder</u> <u>original target filing date 9-19-05</u>	<u>Mosaic Image Sensor With</u> <u>Shaped Fiber Optics</u> Fairchild Imaging		US Not yet filed	RCC - RCC
<u>Due Date: 11/19/2005</u> 013843-007000US (Pat)	<u>Target Filing Date - 2 mo. Reminder</u> <u>original target filing date 9-19-05</u>	<u>Single Strobe & Multi-Light</u> <u>Source Imaging Camera With</u> <u>Coded Image Sensor for 3D</u> Information Fairchild Imaging		US Not yet filed	RCC - RCC
<u>Due Date: 11/19/2005</u> 013843-007100US (Pat)	<u>Target Filing Date - 2 mo. Reminder</u> <u>original target filing date 9-19-05</u>	<u>Cinema-Motion Picture</u> <u>Sequence & Slow Framing, High</u> <u>Cinema-Resolution Camera for</u> <u>RECCE, Animation, Cinema</u> Fairchild Imaging		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/19/2005 013843-007200US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Redundant Staggered TDI CCD Arrays Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007300US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Sequential Imager with Pseudorandom Pixel Layout Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007400US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Coder Image Sensor with Exposure Control Interface & Scene Super-Nyquist Sampling Capability Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007500US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Gazebo Lamp Artificial Light Source Corner Connector Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007600US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Dual Energy X-Ray Imaging System for Bone Densitometry Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007800US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Home Plate Shaped Solid-State Imager Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007900US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Integrated Image Sensor & Flip Mirror Assembly Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 16869P-094700US (Pat)	Response to Office Action	Control Method of Storage System, Storage System, and Storage Apparatus Hitachi Ltd.	10/684060 10/10/2003	US Pending - Published	RCC - RCC
Due Date: 11/19/2005 16869S-104600US (Pat)	Response to Office Action (1st Extension)	Terminal Device, Service Providing Server, and RF Tag Sheet Asamura Patent Office (for Hitachi, Ltd.	10/770785 2/2/2004	US Pending - Published	RCC - RCC
Due Date: 11/20/2005 16869P-071700US (Pat)	Notice of Appeal (2nd Ext)	Electronic Device Hitachi Ltd.	10/384308 3/7/2003	US Pending - Published	RCC - RCC
Due Date: 11/20/2005 16869P-071700US (Pat)	Response to Final Office Action (2nd Ext)	Electronic Device Hitachi Ltd.	10/384308 3/7/2003	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/20/2005 16869S-023200US (Pat)	Response to Office Action (Final Deadline)	Method and System for Financially-Intermediating Transaction-of-Products Asamura Patent Office (for Hitachi Ltd)	09/796775 2/28/2001	US Pending Published	RCC - REG

Prosecution Docket Report

For: Robert C. Colwell
Country: For All Countries
Start Date: 10/28/2005
End Date: 11/28/2005
Date Type: Both Due and Reminder Dates

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No. Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/28/2005 021206-001100US (Pat)	Foreign Filing Deadline rec'd instructions not to foreign file 9/20/05; ff notification letter sent to RCC for signature 8/03/05 & 9/20/05	Latch in a Flexible Magnetic Storage Card StorCard, Inc.	60/623315 10/28/2004	US Inactive - Expired	RCC - RCC RCC
Due Date: 10/28/2005 021206-001100US (Pat)	File Non-Provisional Application	Latch in a Flexible Magnetic Storage Card StorCard, Inc.	60/623315 10/28/2004	US Inactive - Expired	RCC - RCC RCC
Due Date: 10/29/2005 012752-000500US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-29-05	ROTARY SCANNER Axon Instruments, Inc.		US Not yet filed	RCC - RCC
Due Date: 10/29/2005 021603-000100US (Pat)	Response-2nd Final Office Action	System and Methods for Facilitating Negotiations for Supply Chain Control elnovate, Inc.	10/125688 4/17/2002	US Pending - Published	RCC - RCC
Due Date: 10/29/2005 021603-000100US (Pat)	2nd Notice of Appeal	System and Methods for Facilitating Negotiations for Supply Chain Control elnovate, Inc.	10/125688 4/17/2002	US Pending - Published	RCC - RCC
Due Date: 10/29/2005 16869S-152900US (Pat)	Priority Document	Semiconductor Device Asamura Patent Office (for Hitachi, Ltd.	11/172207 6/29/2005	US Pending	RCC - RCC
Due Date: 10/30/2005 00939A-046400US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 7-30-05	COLUMN SWITCH IN SEMICONDUCTOR MEMORY Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 10/30/2005 16869P-121400US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 9-30-05	Optical Writing Apparatus and Image Forming Apparatus Asamura Patent Office (for Hitachi, Ltd. (16869S))		US Not yet filed	RCC - RCC
Due Date: 11/01/2005 010327-010100US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 8-1-05	Efficient Partial Key Lookup Algorithm in AVL Trees Network Equipment Technologies, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/01/2005 021206-000130US (Pat)	Target Filing Date - 5 mo. Reminder original target filing date 6-1-05	Enhanced Smart Card With Rotating Storage StorCard, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/01/2005 16869P-007420US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-1-05	Control System and Method of Controlling Information Written into Storage Media Hitachi Ltd.		US Not yet filed	RCC - RCC
Due Date: 11/01/2005 16869B-127500US (Pat)	Check PAIR for 1st OA	Quality of Service for Remote Copy Operations in Storage Systems Hitachi, Ltd.	10/980121 11/1/2004	US Pending	RCC - RIH
Due Date: 11/02/2005 16869N-049200US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-2-05	Plasma Display Panel Driving Method, Driving Circuit & Image Displaying Device Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC
Due Date: 11/02/2005 16869B-071400US (Pat)	Check PAIR for 1st OA	Method and Apparatus for Storage Initialization of Storage Systems Hitachi, Ltd.	10/429059 5/2/2003	US Pending	RCC - RIH
Due Date: 11/03/2005 16869B-0115500US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 8-3-05	Data Discovery and Location Management Hitachi, Ltd.		US Not yet filed	RCC - RCC
Due Date: 11/03/2005 16869N-160000US (Pat)	IDS (Inf. Discl. Stmt.) deadline	Optical Disk Video Camera Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	11/197193 8/3/2005	US Pending	RCC - RIH
Due Date: 11/04/2005 013843-008300US (Pat)	Non-Provisional Target Filing Date: Disclosure indicates invention published 07/27/05; no foreign filing	Multi-Spectral Imaging Implementation Using Color Store Regions in TDI Applications Fairchild Imaging		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg. No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/05/2005 16869N-115000US (Pat)	Check PAIR for 1st OA	Recording/Reproducing Apparatus for Video/Audio Signals Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/839957 5/5/2004	US Pending - Published	RCC - R1H
Due Date: 11/06/2005 025991-001400US (Pat)	Notice of Appeal (Final)	Assembly Language Code Compilation for an Instruction- Set Architecture Containing New Instructions Using the Prior... Renesas Technology Corporation	09/747824 12/22/2000	US Pending - Published	RCC - RCC
Due Date: 11/06/2005 025991-001400US (Pat)	Response to Final Office Action (Final Deadline)	Assembly Language Code Compilation for an Instruction- Set Architecture Containing New Instructions Using the Prior... Renesas Technology Corporation	09/747824 12/22/2000	US Pending - Published	RCC - RCC
Due Date: 11/06/2005 12172S-006700GB (Pat)	Working Requirement (GB)	METHOD & APPARATUS FOR DYNAMICALLY INTERPRETING DRAWING COMMANDS Intergraph Hardware Technologies Company	96106926.7 5/2/1996 GB 0741372 11/6/2002	United Kingdom Granted	RCC - RCC SYP
Due Date: 11/06/2005 16869N-065400US (Pat)	Check PAIR for 1st OA	Network Device and Network Device Control Method Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/289897 11/6/2002	US Pending - Published	RCC - R1H
Due Date: 11/07/2005 16869P-161100US (Pat)	Missing Parts Deadline	Imaging Apparatus Hitachi Ltd.	11/208247 8/19/2005	US Pending	RCC - RCC
Due Date: 11/08/2005 00939A-079200US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-8-05	New Spacer Oxide Formation Method for Flash Memory Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 11/08/2005 022267-000300US (Pat)	File Non-Provisional Application	Method for Improving Demand Forecast Using Downstream Product Movement Information Truth Software, Inc.	60/626194 11/8/2004	US Inactive - Expired	RCC - RCC RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
<u>Due Date: 11/08/2005</u> 022267-000300US (Pat)	Foreign Filing Deadline 2wk email reminder sent 10/25/05; ff notification letter sent to RCC for signature 8/09/05 & 9/22/05	Method for Improving Demand Forecast Using Downstream Product Movement Information Truth Software, Inc.	60/626194 11/8/2004	US Inactive - Expired	RCC - RCC RCC
<u>Due Date: 11/08/2005</u> 16869P-019800US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-8-05	Multiprocessor System & Data Transmitting Method Hitachi Ltd.		US Not yet filed	RCC - RCC
<u>Due Date: 11/08/2005</u> 16869S-053800US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-8-05	Firewell Apparatus Asamura Patent Office (for Hitachi, Ltd.		US Not yet filed	RCC - RCC
<u>Due Date: 11/09/2005</u> 000939-072300KR (Pat)	Request Examination (KR) - 3 Month Reminder	Pixel Layout in Cmos Image Sensor Hynix Semiconductor Inc.	1020010006381 2/9/2001	Korea (South) Pending	RCC - RCC
<u>Due Date: 11/09/2005</u> 026009-000210US (Pat)	Target Filing Date - 3 mo. Reminder Original Target Filing Date 02/09/06	Split ARP Management Cranite Systems		US Not yet filed	RCC - GBY GBY
<u>Due Date: 11/09/2005</u> 16869B-034600US (Pat)	Notice of Appeal Advisory Action 11/28/05 (received 12/01/05)	Layered Computer System With Thin Clients Hitachi, Ltd.	10/247150 9/18/2002	US Pending - Published	RCC - RCC
<u>Due Date: 11/09/2005</u> 16869P-048200US (Pat)	Response to Final Office Action	Memory Media Archiving System and Operating Method Therefor Hitachi Ltd.	10/127975 4/22/2002	US Pending - Published	RCC - RCC
<u>Due Date: 11/09/2005</u> 16869P-048200US (Pat)	Notice of Appeal	Memory Media Archiving System and Operating Method Therefor Hitachi Ltd.	10/127975 4/22/2002	US Pending - Published	RCC - RCC
<u>Due Date: 11/10/2005</u> 000939-012700US (Pat)	Annuity: Next clt shall handle per YooMi, do not send further reminders 6/8/05-fjc. e-mailed clt 6/7/05-fjc.	Achromatic Expansion Prism For Magneto-Optical Drive Hynix Semiconductor Inc.	07/975918 11/13/1992	US Granted	RCC - RCC
<u>Due Date: 11/10/2005</u> 000939-049600US (Pat)	Check PAIR- No PTO Action 6 Mos. After Response	Active Matrix ESD Protection and Testing Scheme Hynix Semiconductor Inc.	08/782335 1/13/1997	US Pending	RCC - RH
<u>Due Date: 11/10/2005</u> 013843-004300US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-10-05	Center Readout Intra-Oral Image Sensor Fairchild Imaging		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/10/2005 013843-004400US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-10-05	Digital Sensor Cassette for Mammography Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/10/2005 16869P-113400US (Pat)	Check PAIR for 1st OA	Projection Type Display Device and Back Projection Type Display Device Using the Same Hitachi Ltd.	10/842936 5/10/2004	US Pending - Published	RCC - RIH
Due Date: 11/10/2005 16869W-134900US (Pat)	Check PAIR for 1st OA	Information Transmission Method and Host Device Willfort International	10/985625 11/10/2004	US Pending	RCC - RIH
Due Date: 11/11/2005 021111-001400US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-11-05	Vector SRAM Telairity Semiconductor, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/11/2005 021111-001700US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-11-05	Video Switch Matrix and Control Telairity Semiconductor, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/12/2005 16869N-115800US (Pat)	Check PAIR for 1st OA	Storage System Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/845409 5/12/2004	US Pending - Published	RCC - RIH
Due Date: 11/12/2005 16869P-133500US (Pat)	Check PAIR for 1st OA	Method of Configuration Management of a Computer System Hitachi Ltd.	10/987566 11/12/2004	US Pending	RCC - RIH
Due Date: 11/14/2005 022402-000100US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 10-14-05	Billaway Invention Billaway, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/15/2005 00939A-037020US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-15-05	NONVOLATILE MEMORY INTERFACE PROTOCOL FOR IMPROVED SYSTEMS PERFORMANCE Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 11/15/2005 021498-002900US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-15-05	Method of Treating a Substrate to Create a Predetermined Surface Profile CSIRO Telecommunications and Industrial Physics		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/15/2005 16869P-048800US (Pat)	Check PAIR for 1st OA Checked PAIR; no action mailed per R. Hylton e-mail 08/17/05 - b3b 08/19/05	Data Recording Apparatus, Reproduction Apparatus, Recording/Reproduction Method, and Imaging Apparatus Hitachi Ltd.	10/150241 5/15/2002	US Pending - Published	RCC - RIH
Due Date: 11/15/2005 16869S-022210US (Pat)	Check PAIR for 1st OA	Method of Creating a Storage Area and Storage Device Asamura Patent Office (for Hitachi, Ltd.)	10/848431 5/17/2004	US Pending	RCC - RIH SYC
Due Date: 11/16/2005 00939A-045900US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-16-05	MODULAR HANDSET/USER TERMINAL FOR WIRELESS COMMUNICATION Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 11/16/2005 018087-000100US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-16-05	JAVA-BASED TOOL KIT FOR CREATING WEB PAGES ISARDA, INC.		US Not yet filed	RCC - RCC
Due Date: 11/17/2005 025686-053200US (Pat)	Check PAIR for 1st OA	Method and Apparatus for Polymer Coating of Substrates Magnachip Semiconductor	08/971464 11/17/1997	US Pending	RCC - RIH
Due Date: 11/17/2005 16869N-116000US (Pat)	Check PAIR for 1st OA	Electronic Terminal Apparatus Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/847777 5/17/2004	US Pending - Published	RCC - RIH
Due Date: 11/17/2005 16869N-116100US (Pat)	Check PAIR for 1st OA	Recording/Reproducing Apparatus Nitro International Patent Office P.P.C. (for Hitachi, Ltd.)	10/848017 5/17/2004	US Pending - Published	RCC - RIH
Due Date: 11/17/2005 16869P-009710US (Pat)	Response to Office Action (Final Deadline)	Phase Frequency Synchronization Circuitry and Optical Receiver Hitachi Ltd.	10/436802 5/12/2003	US Pending - Published	RCC - RCC
Due Date: 11/17/2005 16869P-112000US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-17-05	Remote Copy Network Hitachi Ltd.		US Not yet filed	RCC - RCC
Due Date: 11/17/2005 16869S-043400US (Pat)	Response to Office Action	Trusted Computer System Asamura Patent Office (for Hitachi, Ltd.)	10/081061 2/20/2002	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No. Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/18/2005 025613-000110US (Pat)	Target Filing Date - 1 mo. Reminder original target filing date 10-18-05	Method and System for Placing a Bid and Receiving the Results of that Bid Via a Communications Network Crewing Solutions LLC		US Not yet filed	RCC - RCC
Due Date: 11/18/2005 16869P-097400US (Pat)	Check PAIR for 1st OA	Service Executing Method and Service Providing System Hitachi Ltd.	10/717346 11/18/2003	US Pending - Published	RCC - R1H
Due Date: 11/19/2005 013843-005800US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Instant Color Image Capture Technique Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-005900US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Two-Story Selenium-Silicon CCD Very High Resolution X- Ray Imager Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-006000US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Manufacturing Method for a Multi-Chip X-Ray Image Sensor Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-006100US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Temporary Noise Suppression Memory Circuit for Analog Integrating Detectors Which Utilize Signal Over Sampling Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-006200US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	High Resolution Hyperspectral Single Linear Image Sensor Array Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-006300US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Stress Relief & Edge Passivation Structure Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-006500US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Image Interpolation & Filtering Algorithm for Matrix for Monochrome & Color Imaging Application Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-006600US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	A CCD Sensor for Space Applications Fairchild Imaging		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/19/2005 013843-006700US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Variable Optical Weight Coded Black & White & Color CCD Olmage Sensor & Image Processing Algorithm Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-006800US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Mosaic Image Sensor With Shaped Fiber Optics Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007000US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Single Strobe & Multi-Light Source Imaging Camera With Coded Image Sensor for 3D Information Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007100US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Cinema Motion Picture Sequence & Slow Framing; High Cinema Resolution Camera for RECCE, Animation, Cinema Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007200US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Redundant Staggered TD1 CCD Arrays Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007300US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Sequential Imager with Pseudorandom Pixel Layout Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007400US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Coder Image Sensor with Exposure Control Interface & Scene Super-Nyquist Sampling Capability Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007500US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Gazebo Lamp Artificial Light Source Corner Connector Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007600US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Dual Energy X-Ray Imaging System for Bone Densitometry Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007800US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Home Plate Shaped Solid-State Imager Fairchild Imaging		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/19/2005 013843-007900US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Integrated Image Sensor & Flip Mirro Assembly Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/20/2005 16869N-082000US (Pat)	Check PAIR for 1st OA	Video Data Reproducing System and Method Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/442527 5/20/2003	US Pending - Published	RCC - R1H
Due Date: 11/20/2005 16869P-071700US (Pat)	Response to Final Office Action (2nd Ext)	Electronic Device Hitachi Ltd.	10/384308 3/7/2003	US Pending - Published	RCC - RCC
Due Date: 11/20/2005 16869P-071700US (Pat)	Notice of Appeal (2nd Ext.)	Electronic Device Hitachi Ltd.	10/384308 3/7/2003	US Pending - Published	RCC - RCC
Due Date: 11/20/2005 16869P-080100US (Pat)	Check PAIR for 1st OA	Camera System, Camera Device, and Recording Device Hitachi Ltd.	10/442384 5/20/2003	US Pending - Published	RCC - R1H
Due Date: 11/20/2005 16869S-051100US (Pat)	Check PAIR for 1st OA	Frequent Customer Points Management Method and System Asamura Patent Office (for Hitachi, Ltd.)	10/152539 5/20/2002	US Pending - Published	RCC - R1H
Due Date: 11/20/2005 16869S-100500US (Pat)	Check PAIR for 1st OA	Recording Medium, Optical Disk Apparatus and Writing Method Asamura Patent Office (for Hitachi, Ltd.)	10/719285 11/20/2003	US Pending	RCC - R1H
Due Date: 11/20/2005 16869Y-101100US (Pat)	Check PAIR for 1st OA	Communication System Tomita & Mishina (for Hitachi, Ltd.)	10/719597 11/20/2003	US Pending - Published	RCC - R1H
Due Date: 11/21/2005 021206-000910US (Pat)	Target Filing Date - 7 mo. Reminder original target filing date 4-21-05	Secure and Portable Data Communicator and Viewer StorCard, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/21/2005 021206-001010US (Pat)	Target Filing Date - 7 mo. Reminder original target filing date 4-21-05	Hierarchical Storage Management of Encrypted Data Files StorCard, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/21/2005 16869P-050800US (Pat)	Check PAIR for 1st OA	Failure Analysis Support System Hitachi Ltd.	10/302102 11/21/2002	US Pending - Published	RCC - R1H

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/23/2005 16869S-135400US (Pat)	Check PAIR for 1st OA	Storage System and Storage Control Method Asamura Patent Office (for Hitachi, Ltd.	10/996297 11/22/2004	US Pending	RCC - R1H
Due Date: 11/23/2005 12172H-005210US (Pat)	Target Filing Date: 4 mo. Reminder original target filing date 7-23-05	CMOS Circuit for Implementing Boolean Functions Intergraph Hardware Technologies Co.		US Not yet filed	RCC - RCC
Due Date: 11/23/2005 16869K-135500US (Pat)	Check PAIR for 1st OA	Data Communication System Control Method, Data Communication System, and Information Processing Apparatus Isshiki International Patent Office	10/996974 11/23/2004	US Pending - Published	RCC - R1H
Due Date: 11/23/2005 16869K-135600US (Pat)	Check PAIR for 1st OA	Management System of Difference Data Among Servers and Control Method of Information Processing Apparatus Isshiki International Patent Office	10/998284 11/23/2004	US Pending - Published	RCC - R1H
Due Date: 11/24/2005 025613-000110PC (Pat)	PCT Fees Due Paid at filing -ess;	System for Assigning Personnel to Tasks in Which the Personnel Have Different Priorities Among Themselves Crewing Solutions LLC	PCT/US05/38299 10/24/2005	PCT Pending	RCC - ESS RCC
Due Date: 11/24/2005 16869K-102000US (Pat)	Check PAIR for 1st OA	Information Processing System, Storage System, Storage Device Control Apparatus and Program Isshiki International Patent Office	10/722781 11/25/2003	US Pending	RCC - R1H
Due Date: 11/24/2005 16869N-115300US (Pat)	Check PAIR for 1st OA	Electronic Mail System, Terminal Device and Software Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/854077 5/24/2004	US Pending - Published	RCC - R1H

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
<u>Due Date: 11/24/2005</u> 16869S-101800US (Pat)	Check PAIR for 1st OA	Admission Control Method and System Thereof, and Facility Reservation Confirmation Method and System Thereof Asamura Patent Office (for Hitachi, Ltd.)	10/722331 11/24/2003	US Pending - Published	RCC - R1H
<u>Due Date: 11/25/2005</u> 16869N-101600US (Pat)	Check PAIR for 1st OA	IC Card Having Security Control Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/723390 11/25/2003	US Pending	RCC - R1H
<u>Due Date: 11/25/2005</u> 16869S-174100US (Pat)	Target Filing Date - 7 mo. Reminder original target filing date 4-25-05	Reproducing Apparatus and Recording/Reproducing Apparatus Asamura Patent Office (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC
<u>Due Date: 11/26/2005</u> 16869R-172000US (Pat)	Target Filing Date - 1 mo. Reminder Original Target Filing Date 10/26/05	Storage Resource Management Method for Storage System Gotoh & Partners (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC
<u>Due Date: 11/26/2005</u> 16869R-173000US (Pat)	Target Filing Date - 1 mo. Reminder Original Target Filing Date 10/26/05	Method of Controlling a Database Management System by Changing Allocation of Cache Memory Gotoh & Partners (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC
<u>Due Date: 11/27/2005</u> 013843-004100US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-27-05	Intra-Oral X-Ray CCD Imager with Chamfered Corners Fairchild Imaging		US Not yet filed	RCC - RCC
<u>Due Date: 11/27/2005</u> 16869N-067400US (Pat)	Check PAIR for 1st OA	Image Recording Device Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/305760 11/27/2002	US Pending - Published	RCC - R1H
<u>Due Date: 11/27/2005</u> 16869N-117000US (Pat)	Check PAIR for 1st OA	Network Device Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/857094 5/27/2004	US Pending - Published	RCC - R1H
<u>Due Date: 11/27/2005</u> 16869P-058500US (Pat)	Response to Office Action (2nd Extension)	Network Storage System and Control Method Hitachi Ltd.	10/251154 9/20/2002	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/27/2005 16869P-064700US (Pat)	Check PAIR for 1st OA	Data Stream Processor Hitachi Ltd.	10/306574 11/27/2002	US Pending - Published	RCC - R1H
Due Date: 11/27/2005 16869S-051300US (Pat)	Response to Office Action (1st Extension)	Method, Apparatus, and System, Computer Program and Computer Program Product for Network Management Asamura Patent Office, for Hitachi, Ltd.	10/452545 5/20/2002	US Pending - Published	RCC - RCC

Prosecution Docket Report

For: Robert C. Colwell

Country: For All Countries

Start Date: 11/01/05

End Date: 12/01/05

Date Type: Both Due and Reminder Dates

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/01/2005 010327-010100US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 8-1-05	Efficient Partial Key Lookup Algorithm in AVL Trees Network Equipment Technologies, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/01/2005 021206-000130US (Pat)	Target Filing Date - 5 mo. Reminder original target filing date 6-1-05	Enhanced Smart Card With Rotating Storage StorCard, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/01/2005 16869N-104800US (Pat)	Response to Office Action	Array-Type Disk Apparatus Preventing Data Lost With 2 Disk Drives Failure In the Same RAID Group, the Preventing Programming and Said Method Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/775702 2/9/2004	US Pending - Published	RCC - RCC
Due Date: 11/01/2005 16869P-007420US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-1-05	Control System and Method of Controlling Information Written into Storage Media Hitachi Ltd.		US Not yet filed	RCC - RCC
Due Date: 11/01/2005 16869S-046110US (Pat)	1-mo. to publication Notice of New/Revised publication 08/25/05 (received 09/06/05)	Storage System Having Means for Acquiring Execution Information of Database Management System Asamura Patent Office (for Hitachi, Ltd.)	11/182281 7/14/2005	US Pending	RCC - RCC
Due Date: 11/02/2005 16869N-049200US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-2-05	Plasma Display Panel Driving Method, Driving Circuit & Image Displaying Device Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/02/2005 16869S-082100US (Pat)	Response to Office Action	Information Recording and Reproducing Apparatus Asamura Patent Office (for Hitachi, Ltd.	10/442530 5/20/2003	US Pending - Published	RCC - RCC
Due Date: 11/02/2005 16869S-083300US (Pat)	Response to Office Action	Data Conversion System Asamura Patent Office (for Hitachi, Ltd.	10/452166 5/30/2003	US Pending Published	RCC - RCC
Due Date: 11/03/2005 16869B-0115500US (Pat)	Target Filing Date - 3 mo. Reminder original target filing date 8-3-05	Data Discovery and Location Management Hitachi, Ltd.		US Not yet filed	RCC - RCC
Due Date: 11/03/2005 16869S-019510US (Pat)	Resp - 1 mo. Restriction Requirement	Apparatus and Method for Recording and Reproducing Information Asamura Patent Office (for Hitachi, Ltd.	09/851599 5/8/2001	US Pending - Published	RCC - RCC
Due Date: 11/04/2005 013843-008300US (Pat)	Non-Provisional Target Filing Date Disclosure indicates invention published 07/27/05; no foreign filing	Multi-Spectral Imaging Implementation Using Color Store Regions in TDI Applications Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/05/2005 16869P-010600US (Pat)	Issue Fee Patent Term Adjustment: 755 days. Client Requests No Additional PTA Calculation; Check re. filing continuation/division	Packet Transmitting and Receiving Method and Apparatus Therefor Hitachi, Ltd.	09/642612 8/17/2000	US Pending	RCC - RCC
Due Date: 11/06/2005 025991-001400US (Pat)	Response to Final Office Action (Final Deadline)	Assembly Language Code Compilation for an Instruction- Set Architecture Containing New Instructions Using the Prior... Renesas Technology Corporation	09/747824 12/22/2000	US Pending - Published	RCC - RCC
Due Date: 11/06/2005 025991-001400US (Pat)	Notice of Appeal (Final)	Assembly Language Code Compilation for an Instruction- Set Architecture Containing New Instructions Using the Prior... Renesas Technology Corporation	09/747824 12/22/2000	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing-- Issue Date	Country Status	Bill - Resp. Party Other Attys
Due Date: 11/06/2005 12172S-006700GB (Pat)	Working Requirement (GB)	METHOD & APPARATUS FOR DYNAMICALLY INTERPRETING DRAWING COMMANDS Intergraph Hardware Technologies Company	96106926.7 5/2/1996 GB 0741372 11/6/2002	United Kingdom Granted	RCC - RCC SYP
Due Date: 11/07/2005 16869N-073700US (Pat)	Response-2 mo. Office Action	Document Retrieval Method and Document Retrieval System Nitto-International Patent Office P.P.C. (for Hitachi, Ltd.)	10/370829 2/21/2003	US Pending - Published	RCC - RCC
Due Date: 11/07/2005 16869P-161100US (Pat)	Missing Parts Deadline	Imaging Apparatus Hitachi Ltd.	11/208247 8/19/2005	US Pending	RCC - RCC
Due Date: 11/08/2005 00939A-079200US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-8-05	New Spacer Oxide Formation Method for Flash Memory Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 11/08/2005 022267-000300US (Pat)	File Non-Provisional Application	Method for Improving Demand Forecast Using Downstream Product Movement Information Truth Software, Inc.	60/626194 11/8/2004	US Pending	RCC - RCC RCC
Due Date: 11/08/2005 022267-000300US (Pat)	Foreign Filing Deadline 2wk email reminder sent 10/25/05; ff notification letter sent to RCC for signature 8/09/05 & 9/22/05	Method for Improving Demand Forecast Using Downstream Product Movement Information Truth Software, Inc.	60/626194 11/8/2004	US Pending	RCC - RCC RCC
Due Date: 11/08/2005 16869P-019800US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-8-05	Multiprocessor System & Data Transmitting Method Hitachi Ltd.		US Not yet filed	RCC - RCC
Due Date: 11/08/2005 16869S-053800US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-8-05	Firewell Apparatus Asamura Patent Office (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC
Due Date: 11/08/2005 16869S-090800US (Pat)	Response to Office Action (1st Extension) Interview Summary 09/13/05 (received 09/16/05)	Method for Accessing Distributed File System Asamura Patent Office (for Hitachi, Ltd.)	10/645813 8/20/2003	US Pending - Published	RCC - RCC
Due Date: 11/09/2005 000939-072300KR (Pat)	Request Examination (KR) - 3 Month Reminder	Pixel Layout in CMOS Image Sensor Hynix Semiconductor Inc.	1020016006381 2/9/2001	Korea (South) Pending	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No. Filing - Issue Date	Country Status	Bill - Resp. Party Other Attys
Due Date: 11/09/2005 16869B-034600US (Pat)	Notice of Appeal	Layered Computer System With Thin Clients Hitachi, Ltd.	10/247150 9/18/2002	US Pending - Published	RCC - RCC
Due Date: 11/09/2005 16869B-034600US (Pat)	Response to Final Office Action	Layered Computer System With Thin Clients Hitachi, Ltd.	10/247150 9/18/2002	US Pending - Published	RCC - RCC
Due Date: 11/09/2005 16869P-048200US (Pat)	Notice of Appeal	Memory Media Archiving System and Operating Method Therefor Hitachi Ltd.	10/127975 4/22/2002	US Pending - Published	RCC - RCC
Due Date: 11/09/2005 16869P-048200US (Pat)	Response to Final Office Action	Memory Media Archiving System and Operating Method Therefor Hitachi Ltd.	10/127975 4/22/2002	US Pending - Published	RCC - RCC
Due Date: 11/10/2005 000939-012700US (Pat)	Annuity: Next clt shall handle per YooMi, do not send further reminders 6/8/05-fjc. e- mailed clt 6/7/05-fjc.	Achromatic Expansion Prism For Magneto-Optical Drive Hynix Semiconductor Inc.	07/975918 11/13/1992	US Granted	RCC - RCC
Due Date: 11/10/2005 013843-004300US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-10-05	Center-Readout-Intra-Oral Image Sensor Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/10/2005 013843-004400US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-10-05	Digital Sensor Cassette for Mammography Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/10/2005 16869K-073400US (Pat)	Notice of Appeal	File Backup Method and Storage Apparatus, Computer Program Therefor and Computer- Readable Medium Containing the Same Isshiki International Patent Office	10/370836 2/21/2003	US Pending - Published	RCC - RCC
Due Date: 11/10/2005 16869K-073400US (Pat)	Response to Final Office Action	File Backup Method and Storage Apparatus, Computer Program Therefor and Computer- Readable Medium Containing the Same Isshiki International Patent Office	10/370836 2/21/2003	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App. - Reg No Filing - Issue/Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/10/2005 16869N-065300US (Pat)	Issue Fee Patent Term Adjustment: 373 days, Client Requests No Additional PTA Calculation; Check re: filing continuation/division	Cellular Phone Terminal Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/286138 10/31/2002	US Pending - Published	RCC - RCC
Due Date: 11/11/2005 021111-001400US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-11-05	Vector SRAM Telairity Semiconductor, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/11/2005 021111-001700US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-11-05	Video Switch Matrix and Control Telairity Semiconductor, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/11/2005 16869K-076500US (Pat)	Response to Office Action	Method for Detecting Fault Between Storage Devices, and Storage Device Used for the Same Isshiki International Patent Office	10/402686 3/28/2003	US Pending - Published	RCC - RCC
Due Date: 11/11/2005 16869N-123100US (Pat)	Issue Fee Patent Term Adjustment: 0 days, Client Requests No Additional PTA Calculation; Check re: filing continuation/division	Discharge Lamp Lighting Device Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/888241 7/8/2004	US Pending - Published	RCC - RCC JDC
Due Date: 11/11/2005 16869S-052500US (Pat)	Response-2nd Office Action	Memory Apparatus Asamura Patent Office (for Hitachi, Ltd.)	10/172096 6/13/2002	US Pending - Published	RCC - RCC
Due Date: 11/12/2005 16869S-040900US (Pat)	Issue Fee Patent Term Adjustment: 533 days, Client Requests No Additional PTA Calculation; Check re: filing continuation/division	Method and Apparatus for Managing Surface Image of Thin Film Device and Method and Apparatus for Manufacturing Thin Film Device Using the Same Asamura Patent Office (for Hitachi, Ltd.)	10/054274 1/18/2002	US Pending - Published	RCC - RCC
Due Date: 11/13/2005 16869S-119900US (Pat)	Resp-1 mo. Restriction Requirement	Projection Lens Unit and Rear Projection Type Image Display System Asamura Patent Office (for Hitachi, Ltd.)	10/865549 6/9/2004	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/14/2005 16869P-007200US (Pat)	Response-2nd Office Action (2nd Ext)	Network Measurement Controlling System Apparatus and Method Hitachi Ltd.	09/571003 5/15/2000	US Pending	RCC - RCC
Due Date: 11/15/2005 00939A-037020US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-15-05	NONVOLATILE MEMORY INTERFACE PROTOCOL FOR IMPROVED SYSTEMS PERFORMANCE Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 11/15/2005 021498-002900US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-15-05	Method of Treating a Substrate to Create a Predetermined Surface Profile CSIRO Telecommunications and Industrial Physics		US Not yet filed	RCC - RCC
Due Date: 11/15/2005 16869P-079900US (Pat)	1-mo. to publication Notice of New or Revised Projected Publication Date 09/22/05 (Received 09/30/05); Notice of New or Revised Projected Publication Date 02/03/05 (Received 02/16/05)	Recording Equipment and Recording Method Hitachi Ltd.	10/439614 5/15/2003	US Pending	RCC - RCC
Due Date: 11/15/2005 16869S-162600US (Pat)	Missing Parts Deadline	Display Apparatus Asamura Patent Office (for Hitachi, Ltd.	11/213144 8/25/2005	US Pending	RCC - RCC
Due Date: 11/16/2005 00939A-045900US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-16-05	MODULAR HANDSET/USER TERMINAL FOR WIRELESS COMMUNICATION Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 11/16/2005 018087-000100US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-16-05	JAVA-BASED TOOL KIT FOR CREATING WEB PAGES ISARDA, INC.		US Not yet filed	RCC - RCC
Due Date: 11/17/2005 16869P-009710US (Pat)	Response to Office Action (Final Deadline)	Phase Frequency Synchronism Circuitry and Optical Receiver Hitachi Ltd.	10/436802 5/12/2003	US Pending - Published	RCC - RCC
Due Date: 11/17/2005 16869P-112000US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-17-05	Remote Copy Network Hitachi Ltd.		US Not yet filed	RCC - RCC

Date Client/Matter-(Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/17/2005 16869S-043400US (Pat)	Response to Office Action	Trusted Computer System Asamura Patent Office (for Hitachi, Ltd.	10/081061 2/20/2002	US Pending - Published	RCC - RCC
Due Date: 11/19/2005 013843-005800US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Instant Color Image Capture Technique Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-005900US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Two-Story Selenium-Silicon CCD Very High Resolution X- Ray Imager Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-006000US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Manufacturing Method for a Multi-Chip X-Ray Image Sensor Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-006100US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Temporary Noise Suppression Memory Circuit for Analog Integrating Detectors Which Utilize Signal Over Sampling Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-006200US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	High Resolution Hyperspectral Single Linear Image Sensor Array Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-006300US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Stress Relief & Edge Passivation Structure Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-006500US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Image Interpolation & Filtering Algorithm for Matrix for Monochrome & Color Imaging Application Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-006600US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	A CCD Sensor for Space Applications Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-006700US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Variable Optical Weight Coded Black & White & Color CCD Image Sensor & Image Processing Algorithm Fairchild Imaging		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/19/2005 013843-006800US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Mosaic Image Sensor With Shaped Fiber Optics Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007000US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Single Strobe & Multi-Light Source Imaging Camera With Coded Image Sensor for 3D Information Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007100US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Cinema Motion Picture Sequence & Slow Framing, High Cinema Resolution Camera for RECCE, Animation, Cinema Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007200US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Redundant Staggered TD1 CCD Arrays Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007300US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Sequential Imager with Pseudorandom Pixel Layout Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007400US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Coder Image Sensor with Exposure Control Interface & Scene Super-Nyquist Sampling Capability Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007500US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Gazebo Lamp Artificial Light Source Corner Connector Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007600US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Dual Energy X-Ray Imaging System for Bone Densitometry Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007800US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Home Plate Shaped Solid-State Imager Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/19/2005 013843-007900US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-19-05	Integrated Image Sensor & Flip Mirror Assembly Fairchild Imaging		US Not yet filed	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/19/2005 16869P-094700US (Pat)	Response to Office Action	Control Method of Storage System, Storage System, and Storage Apparatus Hitachi Ltd.	10/684060 10/10/2003	US Pending - Published	RCC - RCC
Due Date: 11/20/2005 16869P-071700US (Pat)	Response to Final Office Action (2nd Ext)	Electronic Device Hitachi Ltd.	10/384308 3/7/2003	US Pending - Published	RCC - RCC
Due Date: 11/20/2005 16869P-071700US (Pat)	Notice of Appeal (2nd Ext.)	Electronic Device Hitachi Ltd.	10/384308 3/7/2003	US Pending - Published	RCC - RCC
Due Date: 11/20/2005 16869S-023200US (Pat)	Response to Office Action (Final Deadline)	Method and System for Financially Intermediating Transaction of Products Asamura Patent Office (for Hitachi, Ltd.)	09/796775 2/28/2001	US Pending - Published	RCC - RCC
Due Date: 11/21/2005 021206-000910US (Pat)	Target Filing Date - 7 mo. Reminder original target filing date 4-21-05	Secure and Portable Data Communicator and Viewer StorCard, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/21/2005 021206-001010US (Pat)	Target Filing Date - 7 mo. Reminder original target filing date 4-21-05	Hierarchical Storage Management of Encrypted Data Files StorCard, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/22/2005 16869S-041000US (Pat)	Response to Office Action (1st Extension)	Method and Apparatus for Executing Java Application Program Asamura Patent Office (for Hitachi, Ltd.)	10/052423 1/17/2002	US Pending - Published	RCC - RCC
Due Date: 11/23/2005 12172H-005210US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-23-05	CMOS Circuit for Implementing Boolean Functions Intergraph Hardware Technologies Co.		US Not yet filed	RCC - RCC
Due Date: 11/24/2005 26869T-153000US (Pat)	Target Filing Date - 5 mo. Reminder original target filing date 6-24-05	Disk Array Device and Control Method Therefor TMI Associates (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC
Due Date: 11/25/2005 021111-000500US (Pat)	Response to Office Action (1st Extension)	Idle Power Reduction for State Machines Telarity Semiconductor, Inc.	10/284623 10/30/2002	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/25/2005 16869S-121900US (Pat)	1-mo. to publication	Disk Subsystem Asamura Patent Office (for Hitachi, Ltd.)	10/877345 6/25/2004	US Pending	RCC - RCC
Due Date: 11/25/2005 16869S-174100US (Pat)	Target Filing Date - 7 mo. Reminder original target filing date 4-25-05	Reproducing Apparatus and Recording/Reproducing Apparatus Asamura Patent Office (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC
Due Date: 11/26/2005 16869B-025100US (Pat)	Issue Fee Patent Term Adjustment: 501 days, Client Requests No Additional PTA Calculation; Check re: filing continuation/division	Control Forwarding in a Pipeline Digital Processor Hitachi, Ltd.	10/094560 3/8/2002	US Pending - Published	RCC - RCC
Due Date: 11/26/2005 16869B-036500US (Pat)	Response to Office Action (1st Extension)	Storage System for Content Distribution Hitachi, Ltd.	10/104779 3/21/2002	US Pending - Published	RCC - RCC
Due Date: 11/26/2005 16869K-109010US (Pat)	Response to Office Action	Data I/O System Using a Plurality of Mirror Volumes Isshiki International Patent Office	10/884693 7/2/2004	US Pending - Published	RCC - RCC
Due Date: 11/26/2005 16869R-172000US (Pat)	Target Filing Date - 1 mo. Reminder Original Target Filing Date 10/26/05	Storage Resource Management Method for Storage System Gotoh & Partners (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC
Due Date: 11/26/2005 16869R-173000US (Pat)	Target Filing Date - 1 mo. Reminder Original Target Filing Date 10/26/05	Method of Controlling a Database Management System by Changing Allocation of Cache Memory Gotoh & Partners (for Hitachi, Ltd.)		US Not yet filed	RCC - RCC
Due Date: 11/27/2005 013843-004100US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-27-05	Intra-Oral X-Ray CCD Imager with Chamfered Corners Fairchild Imaging		US Not yet filed	RCC - RCC
Due Date: 11/27/2005 16869N-061000US (Pat)	Notice of Appeal (1st Ext.)	Information Recording Method and Information Recording Apparatus Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/268570 10/9/2002	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/27/2005 16869N-061000US (Pat)	Response to Final Office Action (1st Extension)	Information Recording Method and Information Recording Apparatus Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/268570 10/9/2002	US Pending - Published	RCC - RCC
Due Date: 11/27/2005 16869P-034700US (Pat)	Notice of Appeal (2nd Ext.) Advisory Action 10/20/05 (received 10/24/05)	Method and System for Storing and Managing Electronic Mail Hitachi Ltd.	10/167011 6/10/2002	US Pending - Published	RCC - RCC
Due Date: 11/27/2005 16869P-058500US (Pat)	Response to Office Action (2nd Extension)	Network Storage System and Control Method Hitachi Ltd.	10/251154 9/20/2002	US Pending - Published	RCC - RCC
Due Date: 11/27/2005 16869S-051300US (Pat)	Response to Office Action (1st Extension)	Method, Apparatus, and System, Computer Program and Computer Program Product for Network Management Asamura Patent Office (for Hitachi, Ltd.)	10/152545 5/20/2002	US Pending - Published	RCC - RCC
Due Date: 11/27/2005 16869S-058900US (Pat)	Response to Final Office Action (1st Extension)	Data Mapping Management Apparatus Asamura Patent Office (for Hitachi, Ltd.)	10/236216 9/5/2002	US Pending - Published	RCC - RCC
Due Date: 11/27/2005 16869S-058900US (Pat)	Notice of Appeal (1st Ext.)	Data Mapping Management Apparatus Asamura Patent Office (for Hitachi, Ltd.)	10/236216 9/5/2002	US Pending - Published	RCC - RCC
Due Date: 11/28/2005 16869B-018700US (Pat)	Response to Office Action (1st Extension)	Method & Apparatus for Resource Allocation in Network Router & Switch Hitachi, Ltd.	09/925182 8/8/2001	US Pending - Published	RCC - RCC
Due Date: 11/28/2005 16869N-044700US (Pat)	Resp-1 mo. Restriction Requirement (1st Ext)	Information Recording Apparatus and Information Recording Method Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/087514 2/28/2002	US Pending - Published	RCC - RCC
Due Date: 11/28/2005 16869N-126900US (Pat)	Resp-1 mo. Restriction Requirement	Optical Projector and Image Display Apparatus Using the Same Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/922706 8/20/2004	US Pending - Published	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 11/28/2005 16869P-048700US (Pat)	Response to Office Action (1st Extension)	Information Receiving System and Information Receiving Terminal Hitachi Ltd.	10/138106 5/3/2002	US Pending - Published	RCC - RCC
Due Date: 11/29/2005 012752-000500US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-29-05	ROTARY SCANNER Axon Instruments, Inc.		US Not yet filed	RCC - RCC
Due Date: 11/29/2005 021603-000100US (Pat)	2nd Notice of Appeal (1st Ext.)	System and Methods for Facilitating Negotiations for Supply Chain Control elnovate, Inc.	10/125688 4/17/2002	US Pending - Published	RCC - RCC
Due Date: 11/29/2005 021603-000100US (Pat)	Response-2nd Final Office Action (1st Ext.)	System and Methods for Facilitating Negotiations for Supply Chain Control elnovate, Inc.	10/125688 4/17/2002	US Pending - Published	RCC - RCC
Due Date: 11/30/2005 00939A-046400US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 7-30-05	COLUMN SWITCH IN SEMICONDUCTOR MEMORY Hynix Semiconductor America Inc.		US Not yet filed	RCC - RCC
Due Date: 11/30/2005 16869N-089000US (Pat)	Response to Office Action (Final Deadline)	Directly Modulated Optical Module and Method for Driving Semiconductor Laser Included Therein Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/642373 8/15/2003	US Pending	RCC - RCC
Due Date: 11/30/2005 16869P-121400US (Pat)	Target Filing Date - 2 mo. Reminder original target filing date 9-30-05	Optical Writing Apparatus and Image Forming Apparatus Asamura Patent Office (for Hitachi, Ltd.		US Not yet filed	RCC - RCC
Due Date: 11/30/2005 16869S-093400US (Pat)	Response to Office Action	Storage System Control Method; Storage System; Information Processing System; Managing Computer and Program Asamura Patent Office (for Hitachi, Ltd.	10/651681 8/29/2003	US Pending - Published	RCC - RCC
Due Date: 11/30/2005 16869W-127000US (Pat)	Response Petition DISMISSED 09/30/05 (received 10/06/05); petition to make special	Volume Providing System and Method Willfort International	10/920974 8/18/2004	US Pending	RCC - RCC

Date Client/Matter (Pat/TM)	Action/Events Notes	Title/Mark Client	App - Reg No Filing - Issue Date	Country Status	Bill - Resp Party Other Attys
Due Date: 12/01/2005 010327-010100US (Pat)	Target Filing Date - 4 mo. Reminder original target filing date 8-1-05	Efficient Partial Key Lookup Algorithm in AVL Trees Network Equipment Technologies, Inc.		US Not yet filed	RCC - RCC
Due Date: 12/01/2005 021206-000130US (Pat)	Target Filing Date - 6 mo. Reminder original target filing date 6-1-05	Enhanced Smart Card With Rotating Storage StorCard, Inc.		US Not yet filed	RCC - RCC
Due Date: 12/01/2005 16869N-104800US (Pat)	Response to Office Action (1st Extension)	Array-Type Disk Apparatus Preventing Data Lost With 2 Disk Drives Failure In the Same RAID Group, the Preventing Programming and Said Method Nitto International Patent Office P.P.C. (for Hitachi, Ltd.)	10/775702 2/9/2004	US Pending - Published	RCC - RCC
Due Date: 12/01/2005 16869P-007420US (Pat)	Target Filing Date - 5 mo. Reminder original target filing date 7-1-05	Control System and Method of Controlling Information Written into Storage Media Hitachi Ltd.		US Not yet filed	RCC - RCC
Due Date: 12/01/2005 16869S-046110US (Pat)	Publication Non-Priority Foreign Filing Notice of New/Revised publication 08/25/05 (received 09/06/05)	Storage System Having Means for Acquiring Execution Information of Database Management System Asamura Patent Office (for Hitachi, Ltd.)	11/182281 7/14/2005	US Pending	RCC - RCC
Due Date: 12/01/2005 16869S-122600US (Pat)	1-mo. to publication	Method of Managing a Storage Area Network Asamura Patent Office (for Hitachi, Ltd.)	10/884247 7/1/2004	US Pending	RCC - RCC

Disposition	Subject	Categories
Start : Monday, August 01, 2005 12:00 AM (1 item)		
D	16869S-544 Amend 2-mo.ext	RCC
Start : Tuesday, August 02, 2005 12:00 AM (3 items)		
GBY	25991-10 Amend/Final	RCC
Roger	16869S-1473 Parts	MKS
Roger	16869K-1468 Parts	MKS
Start : Wednesday, August 03, 2005 12:00 AM (3 items)		
D	16869P-545 Issue Fee	MKS
GBY	16869P-161 Amend/Final	RCC
SYC	00939A-856 Amend	RCC
Start : Thursday, August 04, 2005 12:00 AM (3 items)		
GBY	16869S-298 Amend/Final	RCC
GBY	16869P-329 Amend 1-mo.ext	RCC
SYC	16869P-103-1 Amend	RCC
Start : Friday, August 05, 2005 12:00 AM (2 items)		
D	16869S-640-1 Issue Fee	MKS
D	16869P-492 Issue Fee	MKS
Start : Saturday, August 06, 2005 12:00 AM (6 items)		
Roger	16869S-1471 Parts	MKS
D	16869P-543 Issue Fee	MKS
GBY	16869N-241-1-1 Amend	RCC
Roger	16869N-1486 Parts	MKS
R	16869C-170 Amend/Final	RCC
GBY	16869C-136-1 Amend	RCC
Start : Monday, August 08, 2005 12:00 AM (2 items)		
--	16869S-305 Response (optional)	RCC
D	16869B-265 Amend 1-mo.ext	RCC
Start : Tuesday, August 09, 2005 12:00 AM (4 items)		
D	21111-13 Parts/Drawings	MKS
D	16869P-240-1 Issue Fee	MKS
R	16869N-883 Amend 2-mo.ext	RCC
GBY	16869N-675 Issue Fee	MKS
Start : Thursday, August 11, 2005 12:00 AM (3 items)		
R	16869S-357 Amend 2-mo.ext	RCC
R	16869N-504 Amend	RCC
D	16869B-428 Issue Fee	MKS
Start : Saturday, August 13, 2005 12:00 AM (4 items)		
X	16869S-283 Amend	RCC
RL	16869K-838 Issue Fee	MKS

Disposition Subject		Categories
GBY	16869B-495 Amend	RCC
GBY	16869B-494 Amend	RCC
Start : Sunday, August 14, 2005 12:00 AM (1 item)		
Roger	16869S-1503 Parts / Req.Corr.Filing Receipt	MKS
Start : Monday, August 15, 2005 12:00 AM (1 item)		
Roger	16869P-1490 Parts	MKS
Start : Tuesday, August 16, 2005 12:00 AM (2 items)		
JDC	16869P-724 Amend	RCC
Roger	16869B-1369 Parts	MKS
Start : Wednesday, August 17, 2005 12:00 AM (8 items)		
Roger	16869S-1513 Parts	MKS
JDC	16869P-97-1 Amend	RCC
RL	16869P-781 Amend	RCC
SYC	16869P-602-1 Amend	RCC
GBY	16869P-464 Amend/Final	MKS
JDC	16869P-210 Amend	RCC
X	16869N-759 Amend ?	RCC
RL	16869N-491 Amend	RCC
Start : Thursday, August 18, 2005 12:00 AM (5 items)		
R	16869S-387 Amend	RCC
D	16869S-266-1 Issue Fee	MKS
D	16869P-33-1 Issue Fee	MKS
RL	16869G-874 Amend	RCC
GBY	16869B-510 Amend	RCC
Start : Friday, August 19, 2005 12:00 AM (3 items)		
D	16869S-716-1 Issue Fee	MKS
D	16869S-438-1 Issue Fee	MKS
D	16869P-672 Issue Fee	MKS
Start : Saturday, August 20, 2005 12:00 AM (6 items)		
R	16869S-264 Amend	RCC
R	16869S-232 Amend	RCC
D	16869P-81 Issue Fee	MKS
D	16869P-100 Issue Fee	MKS
D	16869K-802 Issue Fee	MKS
GBY	16869K-480-1 Amend	RCC
Start : Sunday, August 21, 2005 12:00 AM (1 item)		
GBY	16869S-762 Response/Appeal	RCC
Start : Monday, August 22, 2005 12:00 AM (1 item)		
RL	16869P-975 Quayle Response	RCC

Disposition	Subject	Categories
Start : Tuesday, August 23, 2005 12:00 AM (2 items)		
GBY	16869S-356 Appeal 3-mo.ext	RCC
D	16869N-458 Issue Fee	MKS
Start : Thursday, August 25, 2005 12:00 AM (3 items)		
RCC	25613-1 Provisional Conversion DUE in 2 months	RCC
D	16869K-835 Issue Fee	MKS
SYC	16869B-86 Amend/Final	RCC
Start : Friday, August 26, 2005 12:00 AM (2 items)		
R	16869N-412 Amend	RCC
GBY	16869B-469 Amend/Final	RCC
Start : Saturday, August 27, 2005 12:00 AM (4 items)		
GBY	16869P-101-2 Appeal	RCC
D	16869K-703 Issue Fee	MKS
RL	16869G-875 Amend	RCC
RL	16869G-871 Amend/Final	RCC
Start : Sunday, August 28, 2005 12:00 AM (4 items)		
RCC	21206-11 Provisional Conversion DUE in 2 months	RCC
Roger	16869S-1510 Parts	MKS
GBY	16869P-363-1-2 Corrected Appln. Papers (drawings)	MKS
Roger	16869N-1509 Parts	MKS
Start : Monday, August 29, 2005 12:00 AM (1 item)		
Roger	16869S-1512 Parts	MKS
Start : Tuesday, August 30, 2005 12:00 AM (1 item)		
Roger	16869P-1419 Parts	MKS
Start : Wednesday, August 31, 2005 12:00 AM (3 items)		
R	21111-3 Amend/Final	RCC
X	16869S-369 Amend/Final	RCC
R	16869N-890 Amend	RCC
Start : Thursday, September 01, 2005 12:00 AM (2 items)		
X	16869P-308 Amend/Final	RCC
GBY	16869N-315-1 Amend	RCC
Start : Friday, September 02, 2005 12:00 AM (2 items)		
GBY	16869P-119 Amend/Final	RCC
RL	16869K-809 Election	MKS
Start : Saturday, September 03, 2005 12:00 AM (3 items)		
D	16869S-305 Issue Fee	MKS
RL	16869K-830 Amend	RCC
GBY	16869B-497 Amend/Final	RCC
Start : Monday, September 05, 2005 12:00 AM (2 items)		

Disposition	Subject	Categories
--	21206-9-1PC Amend claims? (ADD: 9/19/05)	RCC
D	16869N-991 Election	MKS
Start : Tuesday, September 06, 2005 12:00 AM (3 items)		
RCL	16869P-240-2 Issue Fee	MKS
D	16869N-859 Issue Fee	MKS
D	16869C-170 Amend/Final 1-mo.ext (now 25991-14)	RCC
Start : Wednesday, September 07, 2005 12:00 AM (2 items)		
D	16869P-163 Issue Fee	MKS
D	16869N-223 Amend	RCC
Start : Thursday, September 08, 2005 12:00 AM (3 items)		
R	22267-3 Provisional Conversion DUE in 2 months	RCC
SYC	16869S-514-1 Election	MKS
GBY	16869S-338 Amend	RCC
Start : Friday, September 09, 2005 12:00 AM (3 items)		
D	16869S-433 Formality	MKS
D	16869N-883 Amend 3-mo.ext	RCC
Roger	16869K-1523 Parts	MKS
Start : Saturday, September 10, 2005 12:00 AM (4 items)		
D	16869S-579 Election	MKS
RL	16869S-560 Amend/Final	RCC
D	16869N-670 Election	MKS
X	16869N-446 Amend	RCC
Start : Sunday, September 11, 2005 12:00 AM (2 items)		
D	16869S-357 Amend 3-mo.ext	RCC
R	16869N-504 Amend 1-mo.ext	RCC
Start : Tuesday, September 13, 2005 12:00 AM (3 items)		
SYC	16869P-262-1 Amend	RCC
GBY	16869P-164-1 Issue Fee	MKS
RL	16869N-445 Amend/Final	RCC
Start : Wednesday, September 14, 2005 12:00 AM (4 items)		
D	16869S-886 Issue Fee	MKS
R	16869P-72 Amend	RCC
D	16869N-1162 Amend/Final	RCC
D	16869K-644 Issue Fee	MKS
Start : Thursday, September 15, 2005 12:00 AM (4 items)		
SYC	16869P-61-1 Amend/Final	RCC
RL	16869P-201 Amend	RCC
RL	16869N-919 Amend	RCC
D	16869N-1108 Issue Fee	MKS

Disposition	Subject	Categories
Start : Friday, September 16, 2005 12:00 AM (4 items)		
GBY	16869S-551 Amend	RCc
GBY	16869S-1248 Amend	RCC
GBY	16869N-206 Amend/Final	RCC
RL	16869G-863 Issue Fee	MKS
Start : Saturday, September 17, 2005 12:00 AM (7 items)		
D	16869S-721 Issue Fee / Drawings	MKS
SYC	16869P-834 Amend	RCC
SYC	16869P-348 Amend	RCC
GBY	16869P-316 Amend/Final	RCC
X	16869N-815 Amend	RCC
GBY	16869B-166 Amend/Final	RCC
GBY	025991-11 Issue Fee (prev. 16869B-494)	MKS
Start : Sunday, September 18, 2005 12:00 AM (1 item)		
R	16869S-387 Amend 1-mo.ext	RCC
Start : Tuesday, September 20, 2005 12:00 AM (5 items)		
GBY	16869S-264 Amend 1-mo.ext	RCC
R	16869S-232 Amend 1-mo.ext	RCC
R	16869P-717 Amend/Final	RCC
RCL	16869N-326 Issue Fee	MKS
D	16869K-339 Issue Fee	MKS
Start : Wednesday, September 21, 2005 12:00 AM (2 items)		
GBY	16869S-569 Issue Fee	MKS
D	16869S-502 Issue Fee	MKS
Start : Thursday, September 22, 2005 12:00 AM (1 item)		
GBY	16869N-680-1 Amend	RCC
Start : Friday, September 23, 2005 12:00 AM (3 items)		
GBY	16869P-549 Amend/Final	RCC
D	16869P-425 Issue Fee	MKS
D	16869N-753 Issue Fee	MKS
Start : Saturday, September 24, 2005 12:00 AM (5 items)		
SYC	16869S-583-2 Amend/Final	RCC
GBY	16869S-462 Issue Fee	MKS
GBY	16869S-370 Amend/Final	RCC
RL	16869P-418 Amend/Final	RCC
RL	16869B-605 Amend	RCC
Start : Sunday, September 25, 2005 12:00 AM (4 items)		
R	25613-1 Provisional Conversion DUE in 1 month	RCC
Roger	16869S-1532 Parts	MKS

Disposition	Subject	Categories
Roger	16869P-1525 Parts	MKS
SYC	16869B-86 Appeal 1-mo.ext	RCC
Start : Monday, September 26, 2005 12:00 AM (2 items)		
R	16869N-412 Amend 1-mo.ext	RCC
Roger	16869N-1533 Parts	MKS
Start : Tuesday, September 27, 2005 12:00 AM (4 items)		
Roger	16869S-1549 Parts	MKS
D	16869P-347 Amend/Final	RCC
GBY	16869K-822 Amend	RCC
D	16869K-480-1 Issue Fee	MKS
Start : Wednesday, September 28, 2005 12:00 AM (7 items)		
R	21206-11 Provisional Conversion DUE in 1 month	RCC
X	16869S-713 Amend/Final	RCC
X	16869S-590 Amend/Final	RCC
GBY	16869S-421 Amend	RCC
GBY	16869P-152 Amend/Final	RCC
RL	16869K-885 Quayle Response	RCC
RL	16869G-880 Amend/Final	RCC
Start : Thursday, September 29, 2005 12:00 AM (7 items)		
RCL	16869S-581 Issue Fee	MKS
SYC	16869S-514 Amend	RCC
D	16869S-384 Issue Fee	MKS
RL	16869P-178-1 Issue Fee	MKS
D	16869P-1024 Issue Fee	MKS
R	16869N-800 Amend	RCC
GBY	16869N-1101 Amend/Final	RCC
Start : Friday, September 30, 2005 12:00 AM (9 items)		
X	21111-3 Amend/Final 1-mo.ext	RCC
RL	16869S-898 Amend	RCC
SYC	16869S-448-1 Amend	RCC
GBY	16869S-300 Amend	RCC
GBY	16869S-275 Amend	RCC
GBY	16869P-350 Amend	RCC
R	16869N-890 Amend 1-mo.ext	RCC
GBY	16869N-1144 Amend	RCC
RL	16869G-866 Election	MKS
Start : Saturday, October 01, 2005 12:00 AM (5 items)		
Roger	16869S-1531 Parts	MKS
D	16869P-467 Issue Fee	MKS

Disposition	Subject	Categories
Roger	16869N-608-3 Parts	MKS
Roger	16869N-1548 Parts	MKS
D	16869K-732 Issue Fee	MKS
Start : Tuesday, October 04, 2005 12:00 AM (1 item)		
GBY	16869K-992 Quayle Response	RCC
Start : Wednesday, October 05, 2005 12:00 AM (7 items)		
RL	16869W-1104 Amend	RCC
GBY	16869S-575 Amend	RCC
JDC	16869S-435 Amend	RCC
D	16869S-388 Amend	RCC
GBY	16869P-99-1 Amend & Dwgs	RCC
RL	16869P-171 Issue Fee	MKS
GBY	16869N-419 Amend/Final	RCC
Start : Thursday, October 06, 2005 12:00 AM (1 item)		
RL	16869S-899 Amend/Final	RCC
Start : Friday, October 07, 2005 12:00 AM (3 items)		
RL	16869S-921 Amend	RCC
D	16869N-1163 Issue Fee	MKS
RL	16869K-925 Amend	RCC
Start : Saturday, October 08, 2005 12:00 AM (3 items)		
R	22267-3 Provisional Conversion DUE in 1 month	RCC
RL	16869S-908 Amend	RCC
GBY	16869P-63 Amend/Final	RCC
Start : Monday, October 10, 2005 12:00 AM (1 item)		
Roger	16869S-1580 Parts	MKS
Start : Tuesday, October 11, 2005 12:00 AM (4 items)		
D	16869S-529 Issue Fee	MKS
GBY	16869P-1133 Quayle Response	RCC
D	16869N-504 Amend 2-mo.ext	RCC
D	16869N-372 Amend	RCC
Start : Wednesday, October 12, 2005 12:00 AM (6 items)		
GBY	16869S-985 Amend	RCC
D	16869P-157 Issue Fee	MKS
D	16869N-884 Issue Fee	MKS
D	16869N-512 Amend	RCC
D	16869K-340 Amend	RCC
RL	16869G-881 Amend/Final	RCC
Start : Thursday, October 13, 2005 12:00 AM (4 items)		
GBY	16869S-291 Amend/Final	RCC

Disposition	Subject	Categories
GBY	16869P-342 Amend/Final	RCC
R	16869N-757 Amend/Final	RCC
D	16869N-752 Issue Fee	MKS
Start : Friday, October 14, 2005 12:00 AM (5 items)		
X	16869S-841 Issue Fee ?	MKS
RL	16869P-784 Amend	RCC
R	16869P-72 Amend 1-mo.ext	RCC
D	16869P-596 Issue Fee	MKS
RL	16869N-903 Amend/Final	RCC
Start : Saturday, October 15, 2005 12:00 AM (1 item)		
D	16869N-1254 Election	MKS
Start : Tuesday, October 18, 2005 12:00 AM (2 items)		
D	16869S-387 Amend 2-mo.ext	RCC
D	16869N-1114 Amend	RCC
Start : Wednesday, October 19, 2005 12:00 AM (4 items)		
JDC	16869S-320-1 Amend/Final	RCC
JDC	16869S-320 Amend/Final	RCC
Roger	16869S-1589 Parts	MKS
X	16869S-1046 Amend	RCC
Start : Thursday, October 20, 2005 12:00 AM (2 items)		
R	16869S-232 Amend 2-mo.ext	RCC
R	16869P-717 Amend/Final 1-mo.ext	RCC
Start : Friday, October 21, 2005 12:00 AM (1 item)		
JDC	16869S-570 Amend/Final	RCC
Start : Saturday, October 22, 2005 12:00 AM (3 items)		
X	16869S-410 Amend	RCC
RCL	16869P-416 Quayle Response	RCC
RL	16869K-996 Amend	RCC
Start : Tuesday, October 25, 2005 12:00 AM (6 items)		
X	25613-1 PROVISIONAL CONVERSION DUE	RCC
R	21111-5 Amend	RCC
RL	16869P-771 Amend	RCC
D	16869P-658 Issue Fee	MKS
JDC	16869P-270 Amend	RCC
JDC	16869N-555 Amend/Final	RCC
Start : Wednesday, October 26, 2005 12:00 AM (5 items)		
D	16869S-227-1 Issue Fee	MKS
GBY	16869N-412 Amend 2-mo.ext	RCC
Roger	16869N-1600 Parts	MKS

Disposition	Subject	Categories
RL	16869K-938 Amend	RCC
R	16869B-365 Amend	MKS
Start : Thursday, October 27, 2005 12:00 AM (9 items)		
RL	16869S-917 Amend	RCC
R	16869S-589 Amend/Final	RCC
R	16869S-513 Amend	RCC
SYC	16869P-528 Amend/Final	RCC
GBY	16869P-364 Amend/Final	RCC
GBY	16869P-267 Amend/Final	MKS
D	16869N-758 Issue Fee	MKS
GBY	16869N-610 Amend/Final	RCC
D	16869B-430-1 Issue Fee	MKS
Start : Friday, October 28, 2005 12:00 AM (9 items)		
X	21206-11 PROVISIONAL CONVERSION DUE	RCC
GBY	16869S-1089 Amend	RCC
D	16869P-715 Election	MKS
D	16869P-487 Amend	RCC
GBY	16869N-660 Amend/Final	RCC
D	16869N-447 Election	MKS
RL	16869K-885-1 Amend	RCC
GBY	16869K-405-1 Amend	RCC
D	16869B-187 Response/Copy Declaration	MKS
Start : Saturday, October 29, 2005 12:00 AM (4 items)		
R	21603-1 Amend/Final	RCC
GBY	16869P-359 Amend	RCC
JDC	16869N-800 Amend 1-mo.ext	RCC
D	16869G-1001 Issue Fee	MKS
Start : Sunday, October 30, 2005 12:00 AM (3 items)		
Roger	16869S-1610 Parts	MKS
R	16869N-890 Amend 2-mo.ext	RCC
Roger	16869N-1607 Parts	MKS
Start : Tuesday, November 01, 2005 12:00 AM (1 item)		
RL	16869N-1048 Amend	RCC
Start : Wednesday, November 02, 2005 12:00 AM (3 items)		
R	16869S-833 Amend	RCC
R	16869S-821 Amend	RCC
Roger	16869N-1608 Parts	MKS
Start : Thursday, November 03, 2005 12:00 AM (2 items)		
D	16869S-195-1 Election	MKS

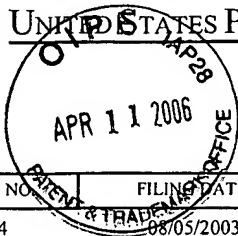
Disposition	Subject	Categories
RL	16869G-871 Response/Interview Summary	MKS
Start : Saturday, November 05, 2005 12:00 AM (2 items)		
D	16869P-794 Issue Fee	MKS
D	16869P-106 Issue Fee	MKS
Start : Monday, November 07, 2005 12:00 AM (2 items)		
Roger	16869P-1611 Parts	MKS
GBY	16869N-737 Quayle Response	RCC
Start : Tuesday, November 08, 2005 12:00 AM (8 items)		
X	22267-3 PROVISIONAL CONVERSION DUE	RCC
GBY	16869S-314 Amend/Final	RCC
GBY	16869P-506-2 Amend/Final	RCC
RL	16869P-46-1 Amend/Final	RCC
GBY	16869P-183-1 Parts	MKS
Roger	16869P-1590 Parts	MKS
GBY	16869K-733 Amend	RCC
GBY	16869B-174-1 Amend/Final	RCC
Start : Wednesday, November 09, 2005 12:00 AM (4 items)		
R	16869P-482 Amend/Final	RCC
GBY	16869P-115 Amend	RCC
D	16869B-346 Amend/Final	RCC
BNY	10327-34 Amend	RCC
Start : Thursday, November 10, 2005 12:00 AM (7 items)		
GBY	16869S-321-1 Issue Fee	MKS
RL	16869N-755 Amend	RCC
D	16869N-653 Issue Fee	MKS
D	16869K-797 Issue Fee	MKS
RL	16869K-734 Amend/Final	RCC
D	16869G-869 Issue Fee	MKS
RL	16869B-981 Amend	RCC

COPY

File Jacket for 10/635,764



UNITED STATES PATENT AND TRADEMARK OFFICE



16869P-006210US
RCC, PA

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,764	08/05/2003	Kouji Arai	16869P-006210US	1709

20350 7590 12/19/2005

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EXAMINER

COBY, FRANTZ

ART UNIT PAPER NUMBER

2161

DATE MAILED: 12/19/2005

**NOT ABANDONED
IN DOCKET**

Check Abandoned Status:

02/19/06

Please find below and/or attached an Office communication concerning this application or proceeding.

17/11/06



Application No.	Applicant(s)	
10/635,764	Arai	
Examiner	Art Unit	
COBY	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

This application is abandoned in view of:

1. ☐ Applicant's failure to timely file a proper reply to the Office letter mailed on _____.
 - (a) ☐ A reply was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply (including a total extension of time of _____ month(s)) which expired on _____.
 - (b) ☐ A proposed reply was received on _____, but it does not constitute a proper reply under 37 CFR 1.113 (a) to the final rejection. (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114).
 - (c) ☐ A reply was received on _____ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
 - (d) ☐ No reply has been received.
2. ☒ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
 - (a) ☐ The issue fee and publication fee, if applicable, was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
 - (b) ☐ The submitted fee of \$_____ is insufficient. A balance of \$_____ is due.
The issue fee required by 37 CFR 1.18 is \$_____. The publication fee, if required by 37 CFR 1.18(d), is \$_____.
 - (c) ☒ The issue fee and publication fee, if applicable, has not been received.
3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
 - (a) ☐ Proposed corrected drawings were received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply.
 - (b) ☐ No corrected drawings have been received.
4. ☐ The letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.
5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) upon the filing of a continuing application.
6. ☐ The decision by the Board of Patent Appeals and Interference rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.
7. ☐ The reason(s) below:

slk

Petitions to revive under 37 CFR 1.137(a) or (b), or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.

Attachment to Notice of Abandonment

For questions concerning the notice contact

Office of Patent Publication

Image Assistance Center: 888-786-0101.

Information is also available on the USPTO Internet web site:

<http://www.uspto.gov/web/patents/pubs/abandonnotice.html>

Respond to the Notice of Abandonment by one of the following:

1. Petition To Withdraw Holding of Abandonment (See MPEP 711.03(c) I and 37 CFR § 1.181) No fee required

Where an applicant contends that the application is not in fact abandoned (e.g., a reply was in fact filed), a petition under 37 CFR § 1.181(a) requesting withdrawal of the holding of abandonment is the appropriate course of action. Any petition under 37 CFR § 1.181 to withdraw the holding of abandonment not filed within 2 months of the mail date of a Notice of Abandonment may be dismissed as untimely under 37 CFR § 1.181(f). In order for a petition to be granted, the evidence must be sufficient according to 37 CFR § 1.8(b) Certificate of Mailing, 37 CFR § 1.10 "Express Mail" mailing or MPEP 503 Postcard Receipt as Prima Facie Evidence. The petition should be addressed as follows:

By mail: Mail Stop: Issue Fee, Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450

By facsimile: 703-872-9306

2. Petition To Withdraw Holding Of Abandonment Based On Failure To Receive Office Action (MPEP 711.03(c) II and 37 CFR § 1.181). No fee required

Where an applicant contends that the original Notice of Allowance and Fee(s) Due was never received, if adequately supported, the Office may grant the petition and remail the Office action. The showing required establishing non-receipt of an Office communication must include a statement from the practitioner stating that the Office communication was not received and attesting to the fact that a search of the file jacket and docket records indicates that the Office communication was not received. A copy of the docket record where the nonreceived Office would have been entered had it been received and docketed must be attached to and referenced in practitioner's statement.

Petition should be addressed to the Technology Center handling the application as follows:

By mail: Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450

By facsimile: 703-872-9306

3. Petition To Revive An Abandoned Application (See MPEP 711.03(c) III)

Where there is no dispute as to whether an application is abandoned (e.g., the applicant's contentions merely involve the cause of abandonment) a petition under 37 CFR § 1.137 (a) or (b) (accompanied by the appropriate petition fee) is necessary to revive the abandoned application. The text of these rules is available on the USPTO Internet Web site. Forms for these petitions, "Petition For Revival Of An Application For Patent Abandoned Unavoidably Under 37 CFR § 1.137(a)," PTO/SB/61, and "Petition For Revival Of An Application For Patent Abandoned Unintentionally Under 37 CFR 1.137(b)," PTO/SB/64, are available in the forms section of the USPTO website: <http://www.uspto.gov>.

Petitions under 37 CFR § 1.137 should be addressed to the Office of Petitions as follows:

By mail: Mail Stop Petition, Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450

By facsimile: 703-872-9306

Note: Abandonment takes place by operation of law for failure to reply to an Office action or timely pay the issue fee, not by operation of the mailing of a Notice of Abandonment

TO THE U.S. PATENT AND TRADEMARK OFFICE:

60426634 v1

Application No.:	10/635,764	Docket No.:	16869P-006210US
Confirmation No.:	2171	Attorney:	RCC:mks
Due Date:	January 21, 2005		
Date Mailed:	February 22, 2005		

Please stamp the date of receipt of the following documents and return this card to addressee.

card to addressee.

TO THE U.S. PATENT AND TRADEMARK OFFICE:

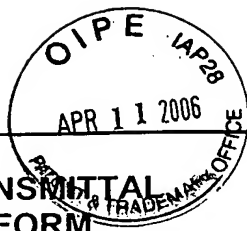
60426634 v1

Application No.:	10/635,764	Docket No.:	16869P-006210US
Confirmation No.:	2171	Attorney:	RCC:mks
Due Date:	January 21, 2005		
Date Mailed:	February 22, 2005		

Please stamp the date of receipt of the following documents and return this card to addressee.

- Transmittal Form
- Fee Transmittal (x2)
- Petition to Extend Time (x2)
- Terminal Disclaimer





PTO/SB/21 (09-04)

**TRANSMITTAL
FORM**

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	10/635,764
Filing Date	August 5, 2003
First Named Inventor	Arai, Kouji
Art Unit	2171
Examiner Name	Frantz Coby
Attorney Docket Number	16869P-006210US

ENCLOSURES (Check all that apply)

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Fee Transmittal Form
<input type="checkbox"/> Fee Attached
<input type="checkbox"/> Amendment/Reply
<input type="checkbox"/> After Final
<input type="checkbox"/> Affidavits/declaration(s)
<input type="checkbox"/> Extension of Time Request
<input type="checkbox"/> Express Abandonment Request
<input type="checkbox"/> Information Disclosure Statement

<input type="checkbox"/> Certified Copy of Priority Document(s)
<input type="checkbox"/> Reply to Missing Parts/ Incomplete Application
<input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53 | <input type="checkbox"/> Drawing(s)
<input type="checkbox"/> Licensing-related Papers
<input type="checkbox"/> Petition
<input type="checkbox"/> Petition to Convert to a Provisional Application
<input type="checkbox"/> Power of Attorney, Revocation
Change of Correspondence Address
<input checked="" type="checkbox"/> Terminal Disclaimer
<input type="checkbox"/> Request for Refund
<input type="checkbox"/> CD, Number of CD(s) _____
<input type="checkbox"/> Landscape Table on CD | <input type="checkbox"/> After Allowance Communication to TC
<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Status Letter
<input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):
Return Postcard |
|---|--|--|
- Remarks: The Commissioner is authorized to charge any additional fees to Deposit Account 20-1430.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Townsend and Townsend and Crew LLP
Signature	
Printed name	Robert C. Colwell
Date	February 22, 2005

Reg. No.	27,431
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CERTIFICATE OF TRANSMISSION/MAILING

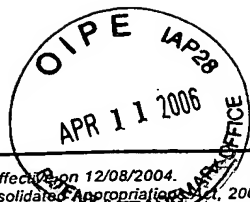
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

Signature	
Typed or printed name	Margaret K. Stephan
Date	February 22, 2005



PTO/SB/22 (12-04)

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) FY 2005 <i>(Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)</i>		Docket Number (Optional) 16869P-006210US																									
Application Number 10/635,764		Filed August 5, 2003																									
For SYSTEM AND METHOD FOR REPLICATING DATA																											
Art Unit 2171		Examiner Frantz Coby																									
<p>This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.</p> <p>The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):</p> <table><thead><tr><th></th><th>Fee</th><th colspan="2">Small Entity Fee</th></tr></thead><tbody><tr><td><input checked="" type="checkbox"/> One month (37 CFR 1.17(a)(1))</td><td>\$120</td><td>\$60</td><td>\$ 120</td></tr><tr><td><input type="checkbox"/> Two months (37 CFR 1.17(a)(2))</td><td>\$450</td><td>\$225</td><td>\$</td></tr><tr><td><input type="checkbox"/> Three months (37 CFR 1.17(a)(3))</td><td>\$1020</td><td>\$510</td><td>\$</td></tr><tr><td><input type="checkbox"/> Four months (37 CFR 1.17(a)(4))</td><td>\$1590</td><td>\$795</td><td>\$</td></tr><tr><td><input type="checkbox"/> Five months (37 CFR 1.17(a)(5))</td><td>\$2160</td><td>\$1080</td><td>\$</td></tr></tbody></table> <p><input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.</p> <p><input type="checkbox"/> A check in the amount of the fee is enclosed.</p> <p><input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.</p> <p><input checked="" type="checkbox"/> The Director has already been authorized to charge fees in this application to a Deposit Account.</p> <p><input checked="" type="checkbox"/> The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>20-1430</u>. I have enclosed a duplicate copy of this sheet.</p> <p>WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.</p> <p>I am the <input type="checkbox"/> applicant/inventor. <input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed (Form PTO/SB/96). <input checked="" type="checkbox"/> attorney or agent of record. Registration Number <u>27,431</u> <input type="checkbox"/> attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____</p> <p><u>Robert C. Colwell</u> Signature</p> <p><u>February 22, 2005</u> Date</p> <p><u>Robert C. Colwell, Reg. No. 27,431</u> Typed or printed name</p> <p><u>650-326-2400</u> Telephone Number</p> <p>NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.</p> <p><input type="checkbox"/> Total of _____ forms are submitted.</p>					Fee	Small Entity Fee		<input checked="" type="checkbox"/> One month (37 CFR 1.17(a)(1))	\$120	\$60	\$ 120	<input type="checkbox"/> Two months (37 CFR 1.17(a)(2))	\$450	\$225	\$	<input type="checkbox"/> Three months (37 CFR 1.17(a)(3))	\$1020	\$510	\$	<input type="checkbox"/> Four months (37 CFR 1.17(a)(4))	\$1590	\$795	\$	<input type="checkbox"/> Five months (37 CFR 1.17(a)(5))	\$2160	\$1080	\$
	Fee	Small Entity Fee																									
<input checked="" type="checkbox"/> One month (37 CFR 1.17(a)(1))	\$120	\$60	\$ 120																								
<input type="checkbox"/> Two months (37 CFR 1.17(a)(2))	\$450	\$225	\$																								
<input type="checkbox"/> Three months (37 CFR 1.17(a)(3))	\$1020	\$510	\$																								
<input type="checkbox"/> Four months (37 CFR 1.17(a)(4))	\$1590	\$795	\$																								
<input type="checkbox"/> Five months (37 CFR 1.17(a)(5))	\$2160	\$1080	\$																								



PTO/SB/17 (12-04)

Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL

For FY 2005

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 0

Complete if Known

Application Number	10/635,764
Filing Date	August 5, 2003
First Named Inventor	Arai, Kouji
Examiner Name	Frantz Coby
Art Unit	2171
Attorney Docket No.	16869P-006210US

METHOD OF PAYMENT (check all that apply)☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____☒ Deposit Account Deposit Account Number: 20-1430 Deposit Account Name: Townsend and Townsend and Crew LLP

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments**WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038**FEE CALCULATION****1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Small Entity	Fee (\$)	Small Entity	Fee (\$)	Small Entity	Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Small Entity	Fee (\$)	Fee (\$)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25	
Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent	200	100	
Multiple dependent claims	360	180	

<u>Total Claims</u>	<u>Extra Claims</u>	<u>Fee (\$)</u>	<u>Fee Paid (\$)</u>	<u>Multiple Dependent Claims</u>	<u>Fee (\$)</u>	<u>Fee Paid (\$)</u>
-20 or HP =	x	=				

HP = highest number of total claims paid for, if greater than 20

<u>Indep. Claims</u>	<u>Extra Claims</u>	<u>Fee (\$)</u>	<u>Fee Paid (\$)</u>
-3 or HP =	x	=	

HP = highest number of independent claims paid for, if greater than 3

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

<u>Total Sheets</u>	<u>Extra Sheets</u>	<u>Number of each additional 50 or fraction thereof</u>	<u>Fee (\$)</u>	<u>Fee Paid (\$)</u>
- 100 =	/ 50 =	(round up to a whole number) x	=	

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

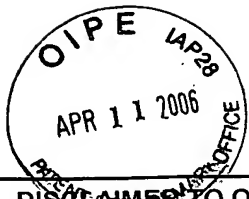
Other: Disclaimer Fee under Fee Code 1814

Fees Paid (\$)

130

SUBMITTED BY

Signature		Registration No. (Attorney/Agent) 27,431	Telephone 650-326-2400
Name (Print/Type)	Robert C. Colwell		Date February 22, 2005

**TERMINAL DISCLAIMER TO OBTAIN A DOUBLE PATENTING
REJECTION OVER A "PRIOR" PATENT**Docket Number (Optional)
16869P-006210US

In re Application of: Kouji ARAI, et al.

Application No.: 10/635,764

Filed: August 5, 2003

For: SYSTEM AND METHOD FOR REPLICATING DATA

The owner*, HITACHI, LTD., of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application, which would extend beyond the expiration date of the full statutory term prior patent No. 6,643,667 as the term of said prior patent is defined in 35 U.S.C. 154 and 173, and as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term as defined in 35 U.S.C. 154 and 173 of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:

- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ For submissions on behalf of a business/organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the business/organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

2. ☒ The undersigned is an attorney or agent of record. Reg. No. 27,431

Signature

February 22, 2005

Date

Robert C. Colwell

Typed or printed name

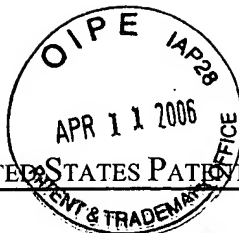
650-326-2400

Telephone Number

- ☒ Terminal disclaimer fee under 37 CFR 1.20(d) is included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.



UNITED STATES PATENT AND TRADEMARK OFFICE

16869P-006210US

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

RCC, PA

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,764	08/05/2003	Kouji Arai	16869P-006210US	1709

20350 7590 10/21/2004

TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER

COBY, FRANTZ

ART UNIT PAPER NUMBER

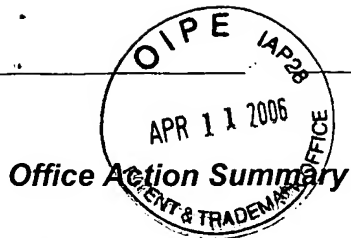
2171

DATE MAILED: 10/21/2004

Response Due *1/21/05*

Please find below and/or attached an Office communication concerning this application or proceeding.

JLE



Application No.

10/635,764

Applicant(s)

ARAI ET AL.

Examiner

Frantz Coby

Art Unit

2161

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-58 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08-05-03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

This is in response to application filed on August 05, 2003 in which claims 1-25 were canceled and claims 26-58 were added.

Status of Claims

Claims 26-58 are pending.

Information Disclosure Statement

The information disclosure statement filed on August 05, 2003 is in compliance with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. It has been placed in the application file and the information referred to therein has been considered as to the merits.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 26-58 are rejected under the judicially created doctrine of double patenting over claims 1-37 of U. S. Patent No. 6,643,667 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows: receiving a query for properties to identify the content categories for which the selected search engine is suited; and receiving a query to locate content based on at least one content category of the identified content categories.

Claims 26-36 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of U.S. Patent no. 6,643,667. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-11 of patent 6,643,667 contains every element of claims 26-36 of the instant application and as such anticipates claims 26-36 of the instant application.

Claim 37 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 12 of U.S. Patent no. 6,643,667. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1 and 12 of patent 6,643,667 contains every element of claim 37 of the instant application and as such anticipates claim 37 of the instant application.

Claim 38 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 13 of U.S. Patent no. 6,643,667. Although the conflicting claims are not identical, they are not patentably distinct from each other because

Art Unit: 2171

claim 13 of patent 6,643,667 contains every element of claim 38 of the instant application and as such anticipates claim 38 of the instant application.

Claims 39-46 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 14-19 of U.S. Patent no. 6,643,667. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 14-19 of patent 6,643,667 contains every element of claims 39-46 of the instant application and as such anticipates claims 39-46 of the instant application.

Claim 47 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 20 of U.S. Patent no. 6,643,667. Although the conflicting claim is not identical, it is not patentably distinct from each other because claim 20 of patent 6,643,667 contains every element of claim 47 of the instant application and as such anticipates claim 47 of the instant application.

Claims 48-49 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 21-22 of U.S. Patent no. 6,643,667. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 21-22 of patent 6,643,667 contains every element of claims 48-49 of the instant application and as such anticipates claims 48-49 of the instant application.

Claim 50 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 23 of U.S. Patent no. 6,643,667. Although the conflicting claim is not identical, it is not patentably distinct from each other because claim 23 of patent 6,643,667 contains every element of claim 50 of the instant application and as such anticipates claim 50 of the instant application.

Claims 51-55 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 24-34 of U.S. Patent no. 6,643,667. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 24-34 of patent 6,643,667 contains every element of claims 51-55 of the instant application and as such anticipates claims 51-55 of the instant application.

Claims 56-58 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 35-37 of U.S. Patent no. 6,643,667. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 35-37 of patent 6,643,667 contains every element of claims 56-58 of the instant application and as such anticipates claims 56-58 of the instant application.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frantz Coby whose telephone number is 571 272-4017. The examiner can normally be reached on Monday-Saturday between 3:00 P.M – 11:00 P.M.

Art Unit: 2171

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 703 308 1436. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Frantz Coby
Primary Examiner
Art Unit 2161

October 12, 2004



Notice of References Cited

Application/Control No.

10/635,764

Applicant(s)/Patent Under
Reexamination
ARAI ET AL.

Examiner

Frantz Coby

Art Unit

2161

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,496,839	12-2002	Cabrera et al.	707/203
	B	US-6,507,883	01-2003	Bello et al.	711/4
	C	US-6,643,667	11-2003	Arai et al.	707/200
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
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	P					
	Q					
	R					
	S					
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



PTO/SB/08A (04-03)

Approved for use through 04/30/2003. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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Substitute for Form 1449/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Page 1 of 1

Complete if Known

Application Number	
Filing Date	
First Named Inventor	Arai, Kouji, et. al.
Art Unit	2101
Examiner Name	Frantz Coby
Attorney Docket Number	16869P-006210US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
FL	AA	US-5,845,285		12/1/98	Houseman et al.	
FL	AB	US-5,857,208		1/5/99	Ofek	
FL	AC	US-6,009,481		12/1999	Mayer	
FL	AD	US-5,983,318		11/1999	Norwood	
FL	AE	US-5,987,568		11/1999	Vishitzky	
FL	AF	US-5,961,652		10/1999	Thompson	
FL	AG	US-6,105,118		8/2000	Maddalozzo, Jr. et al.	
FL	AH	US-6,023,584		2/2000	Barton et al.	
FL	AI	US-5,819,310		10/1998	Vishitzky et al.	
FL	AJ	US-5,390,313		2/1995	Yanai et al.	
FL	AK	US-5,423,048		6/1995	Nunneley et al.	
FL	AL	US-5,212,784		5/1993	Sparks	
FL	AM	US-5,392,244		2/1995	Jacobson et al.	
FL	AN	US-5,435,004		7/1995	Cox et al.	
FL	AO	US-5,432,922		7/1995	Polyzois et al.	
FL	AP	US-5,897,661		4/1999	Baranovsky et al.	
FL	AQ	US-6,112,257		8/2000	Mason, Jr. et al.	
FL	AR	US-5,742,792		4/21/1998	Yanai et al.	
FL	AS	US-5,852,715		12/22/1998	Raz et al.	
FL	AT	US-6,101,497		8/8/2000	Ofek	
FL	AU	US-6,092,068		7/18/2000	Ofek	
FL	AV	6,035,412		3/7/2000	Tamer et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³	Number ⁴ Kind Code ⁵ (if known)				
FL	AW	EP	0 671 686 A1	02/07/1995			<input type="checkbox"/>
FL	AX	WORLD	99/15957	4/1999	Mason et al.		<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>

Examiner
Signature

Frantz Coby

Date
Considered

10/11/04

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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16869P-006210US RCC

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APR 11 2006

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
10/635,764	08/05/2003	Kouji Arai	16869P-006210US

20350
TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

CONFIRMATION NO. 1709



OC000000011891003

Title: System and method for replicating data

Publication No. US-2004-0030730-A1
Publication Date: 02/12/2004

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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APPL NO.	FILING OR 371 (c) DATE	ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
10/635,764	08/05/2003	2171	1572	16869P-006210US	15	33	10

CONFIRMATION NO. 1709

20350

TOWNSEND AND TOWNSEND AND CREW, LLP
 TWO EMBARCADERO CENTER
 EIGHTH FLOOR
 SAN FRANCISCO, CA 94111-3834

FILING RECEIPT



OC000000011175365

Date Mailed: 11/04/2003

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

Applicant(s)

Kouji Arai, Tokyo, JAPAN;
 Susumu Suzuki, Tokyo, JAPAN;
 Hironori Yasukawa, Tokyo, JAPAN;

Assignment For Published Patent Application

Hitachi, Ltd., Tokyo, JAPAN;

Domestic Priority data as claimed by applicant

This application is a CON of 09/528,416 03/17/2000 PAT 6,643,667

Foreign Applications

JAPAN P11-075174 03/19/1999

If Required, Foreign Filing License Granted: 11/03/2003

Projected Publication Date: 02/12/2004

Non-Publication Request: No

Early Publication Request: No

Title

System and method for replicating data

Preliminary Class

707

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TO THE U.S. PATENT AND TRADEMARK OFFICE

Mailing Date: August 5 2003
 File No.: 16869P-006210US
 Inventor(s): Kouji ARAI, et al.
 Title: System and Method for Replicating Data

Express Mail Label No.: EV348063484US
 Attorney/Secretary: RCC:elg

Accompanying the above patent application are:

- ☒ Utility Patent Application Transmittal 1 page
 - ☒ Fee Transmittal 1 page in duplicate
 - ☒ ADS 4 pages
 - ☒ Specification 25 pages
 - ☒ Drawings 15 sheets
 - ☒ Declaration and Power of attorney 5 pages
 - ☒ IDS 3 pages
 - ☒ Assignment and Recordation Cover Sheet 4 pages
 - ☐ Priority Document
- 60010739 v1

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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

U.S. Patent and Trademark Office U.S. DEPARTMENT OF COMMERCE

Attorney Docket No. 16869P-006210US

First Inventor Arai, Kouji

Title SYSTEM AND METHOD FOR REPLICATING DATA

Express Mail Label No. EV348063484US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning design patent application contents.

1. ☒ Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
2. ☐ Applicant claims small entity status.
See 37 CFR 1.27.
3. ☒ Specification [Total Pages 25]
(preferred arrangement set forth below)
 - Descriptive title of the invention
 - Cross Reference to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to sequence listing, a table, or a computer program listing appendix
 - Background of the invention
 - Brief Summary of the invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claim(s)
 - Abstract of the Disclosure
4. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets 15]
5. Oath or Declaration and Power of Atty [Total Pages 5]
 - a. ☐ Newly executed (original or copy)
 - b. ☒ Copy from a prior application (37 CFR 1.63 (d))
(for a continuation/divisional with Box 18 completed)
 - i. ☐ **DELETION OF INVENTOR(S)**
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☒ Application Data Sheet. See 37 CFR 1.76

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 - c. ☐ Statements verifying identity of above copies

ACCOMPANYING APPLICATIONS PARTS

9. ☒ Assignment Papers (cover sheet & document(s)) *COPY*
10. ☐ 37 CFR 3.73(b) Statement [] Power of Attorney
(when there is an assignee)
11. ☐ English Translation Document (if applicable)
12. ☒ Information Disclosure Statement (IDS)/PTO-1449 [] Copies of IDS Citations
13. ☒ Preliminary Amendment
14. ☒ Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)
15. ☐ Certified Copy of Priority Document(s)
(if foreign priority is claimed)
16. ☐ Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent
17. ☐ Other:

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:

☒ Continuation ☐ Divisional ☐ Continuation-in-part (CIP)

of prior application No: 09/528,416

Prior application information:

Examiner

Art Unit:

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. CORRESPONDENCE ADDRESS

☒ Customer Number

20350

OR ☐ Correspondence address below

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City

State

Zip Code

Country

Telephone

Fax

Name (Print/Type)

Robert C. Colwell

Registration No. (Attorney/Agent)

27,431

Signature

Robert C. Colwell

Date

8/5/03

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FEE TRANSMITTAL for FY 2003

Effective 01/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 1572

Complete if Known

Application Number
Filing Date
First Named Inventor Arai, Kouji
Examiner Name Frantz Coby
Art Unit 2171
Attorney Docket No. 16869P-006210US

METHOD OF PAYMENT (check all that apply)

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	750	2001	375	Utility filing fee	750
1002	330	2002	165	Design filing fee	
1003	520	2003	260	Plant filing fee	
1004	750	2004	375	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1)

(\$750)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims		Extra Claims		Fees from below		Fee Paid
33	-20** =	13	X \$18 =			\$234
10	-3** =	7	X \$84 =			\$588
			X			

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
1202	18	2202	9	Claims in excess of 20
1201	84	2201	42	Independent claims in excess of 3
1203	280	2203	140	Multiple dependent claim, if not paid
1204	84	2204	42	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2)

(\$822)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	410	2252	205	Extension for reply within second month	
1253	930	2253	465	Extension for reply within third month	
1254	1,450	2254	725	Extension for reply within fourth month	
1255	1,970	2255	985	Extension for reply within fifth month	
1401	320	2401	160	Notice of Appeal	
1402	320	2402	160	Filing a brief in support of an appeal	
1403	280	2403	140	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,300	2453	650	Petition to revive - unintentional	
1501	1,300	2501	650	Utility issue fee (or reissue)	
1502	470	2502	235	Design issue fee	
1503	630	2503	315	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Petitions related to provisional applications	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	750	2809	375	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	750	2810	375	For each additional invention to be examined (37 CFR § 1.129(b))	
1801	750	2801	375	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid SUBTOTAL (3)

(\$)

SUBMITTED BY

Complete (if applicable)

Name (Print/Type) Robert G. Colwell Registration No. (Attorney/Agent) 27,431 Telephone 650-326-2400
Signature *Robert G. Colwell* Date 8/5/03

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Application Data Sheet

Application Information

Application number::

Filing Date::

Application Type:: Regular

Subject Matter:: Utility

Suggested classification::

Suggested Group Art Unit::

CD-ROM or CD-R??::

Number of CD disks::

Number of copies of CDs::

Sequence Submission::

Computer Readable Form (CRF)?::

Number of copies of CRF::

Title:: System and Method for Replicating Data

Attorney Docket Number:: 16869P-006210US

Request for Early Publication:: No

Request for Non-Publication:: No

Suggested Drawing Figure::

Total Drawing Sheets:: 15

Small Entity?:: No

Latin name::

Variety denomination name::

Petition included?:: No

Petition Type::

Licensed US Govt. Agency::

Contract or Grant Numbers One::

Secrecy Order in Parent Appl.: No

Applicant Information

Applicant Authority Type:: Inventor

Primary Citizenship Country:: Japan
Status:: Full Capacity
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Country of mailing address:: Japan
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Correspondence Information

Correspondence Customer Number:: 20350

Representative Information

Representative Designation::	Representative Number::	Representative Name::
Primary	27,431	Robert C. Colwell

Domestic Priority Information

Application::	Continuity Type::	Parent Application::	Parent Filing Date::
This Application	Continuation of	09/528,416	03/17/00

Foreign Priority Information

Country::	Application number::	Filing Date::
-----------	----------------------	---------------

Assignee Information

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PATENT
16869B-006210
349800444US2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Kouji Arai, et al.

Application No.: UNKNOWN

Filed: Herewith

For: System and Method for Replicating
Data

Examiner: UNKNOWN

Art Unit: UNKNOWN

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination of the above-referenced application, please enter the following amendments:

Amendments to the Claims are reflected in the Listing of Claims which begins on page 2 of this paper.

Listing of Claims:

Claims 1-25 (Canceled).

26. (New) A method for creating a copy of data in a system comprising a plurality of storage devices, a control unit operable to control said storage devices, and a memory operable to temporarily store data read from said storage devices within said control unit, said storage devices addressable as at least one of a plurality of logical volumes, including a first logical volume and a second logical volume, said method comprising:

creating a copy of data in said first logical volume into said second logical volume; said creating a copy further comprising:

copying data from said first logical volume to a first location in said memory;

copying said data from said first location in said memory to a second location in said memory; and

copying said data from said second location in said memory to said second logical volume.

27. (New) The method of claim 26 further comprising: if a write request is issued to said first logical volume after creating a copy has commenced, creating a copy of data in said first logical volume to said second logical volume before said data in said first logical volume is modified by said write request.

28. (New) The method of claim 26 wherein said relationship further comprises: a pairing of a primary volume and a secondary volume.

29. (New) The method of claim 26 further comprising: modifying a location identifier defined in each logical volume.

30. (New) The method of claim 26 further comprising: making said second logical volume accessible after said creating a copy of data in said specified first logical volume into said second logical volume.

31. (New) The method of claim 26 further comprising:
tracking modified data, if a write request is issued to said first logical volume or said second logical volume after the copy processing is completed, and

copying said modified data based upon said tracking, if creating
a copy is directed again to the pair in copy completed status.

32. (New) The method of claim 26 wherein data in said
secondary logical volumes comprises a series of historical records of said primary volume,
said historical records obtained by switching said secondary logical volumes one after
another.

33. (New) The method of claim 26 further comprising:
displaying information about said first logical volume and said second logical volume.

34. (New) The method of claim 26, wherein said control
unit comprises at least one disk adapter, and wherein said at least one disk adapter performs
the step of creating a copy of data in said first logical volume into said second logical
volume.

35. (New) The method of claim 26, wherein said copying
said data from said first location in said memory to a second location in said memory further
comprises:

reading data from said first location in said memory into a
location within an address change unit;

exchanging a logical address within said data from an address
corresponding to said first logical volume to an address corresponding to said second logical
volume; and

writing said data to said second location in said memory.

36. (New) The method of claim 26, wherein said control
unit comprises at least one disk adapter, and wherein said at least one disk adapter comprises
said address change unit.

37. (New) A method for controlling the copying of information from a first logical volume to a second logical volume in a computer system, said method comprising:

- creating a copy of data in said first logical volume into said second logical volume; said creating a copy further comprising:
 - copying data from said first logical volume to a first location into a memory;
 - copying said data from said first location in said memory to a second location in said memory; and
 - copying said data from said second location in said memory to said second logical volume.

38. (New) A method for controlling the copying of information from a first logical volume to a second logical volume in a computer system, said method comprising:

- copying data read from said first logical volume into a memory located within a control unit and thereupon writing said data to said second logical volume; and
- wherein said copying said data from a first location in said memory to a second location in said memory is performed by a control unit.

39. (New) A computer system comprising a plurality of storage devices, a control unit operable to control said storage devices, and a memory operable to temporarily store data read from said storage devices within said control unit, said storage devices addressable as at least one of a plurality of logical volumes, including a first logical volume and a second logical volume, said control unit operatively disposed to:

- create a copy of data in said first logical volume into said second logical volume; said creating a copy further comprising:
 - copy data from said first logical volume to a first location in said memory;
 - copy said data from said first location in said memory to a second location in said memory; and
 - copy said data from said second location in said memory to said second logical volume.

40. (New) The computing system of claim 39 wherein said copy said data from said first location in said memory to a second location in said memory further comprises:

reading data from said first location in said memory into a location within an address change unit;

exchanging a logical address within said data from an address corresponding to said first logical volume to an address corresponding to said second logical volume; and

writing said data to said second location in said memory.

41. (New) The computing system of claim 39 wherein said buffer further comprises 10 Gigabytes of storage.

42. (New) The computing system of claim 39 wherein said plurality of storage devices further comprises a RAID.

43. (New) The computing system of claim 39 further comprising a display, said display operable to depict information about said storage devices.

44. (New) The computing system of claim 39, wherein said control unit further comprises a data recovery and reconstruct (DRR), said DRR operative to copy said data from said first location in said memory to a second location in said memory; and thereupon change a volume number associated with said data.

45. (New) The method of claim 39, wherein said control unit comprises at least one disk adapter, and wherein said at least one disk adapter is configured to create said copy of data in said first logical volume into said second logical volume.

46. (New) The method of claim 40, wherein said control unit comprises at least one disk adapter, and wherein said at least one disk adapter comprises said address change unit.

47 (New) A computer program product for controlling the copying of information from a first logical volume to a second logical volume in a computer system, said computer program product comprising:

code for creating a copy of data in said first logical volume into said second logical volume; said code for creating a copy further comprising:

code for copying data from said first logical volume to a first location into a memory;

code for copying said data from said first location in said memory to a second location in said memory;

code for copying said data from said second location in said memory to said second logical volume; and

a computer readable storage medium for holding the codes.

48. (New) A computer program product for controlling the copying of information from a first logical volume to a second logical volume in a computer system, said computer program product comprising:

code for copying data read from said first logical volume into a memory located within a control unit and thereupon writing said data to said second logical volume; and

wherein said copying said data from said first location in said memory to a second location in said memory is performed by said control unit; and

a computer readable storage medium for holding the codes.

49. (New) The computer program product of claim 48 further comprising:

code for displaying information about said first logical volume and said second logical volume.

50. (New) A control unit for controlling the copying of information, said control unit operable in a computing system comprising at least one of a plurality of storage devices, said control unit operable to control said storage devices, said storage devices addressable as at least one of a plurality of logical volumes, including a first logical volume and a second logical volume, said control unit comprising a memory operable

to temporarily store data read from said storage devices within said control unit, said control unit operatively disposed to:

copy data read from said first logical volume into said memory located within said control unit; and

copy said data from said memory to a different location within said memory, changing a volume identifier associated with said data, and thereupon writing said data to said second logical volume.

51. (New) A computer system comprising a plurality of storage devices, said storage devices addressable as at least one of a plurality of logical volumes, including a first logical volume and a second logical volume, a cache memory operable to temporarily store data, and a control unit operable to store and retrieve data from said storage devices on behalf of said processing units;

wherein said control unit is further operable to copy data from a first logical volume to a second logical volume;

wherein said control unit copies said data from said first logical volume to a first location in said cache memory;

whereupon a data recovery unit within said control unit is operable to create a copy of said data in said first location in said cache memory to a buffer memory within said data recovery unit, and thereupon to copy said data from said buffer memory within said data recovery unit into a second location in said cache memory; and thereupon to copy said data from said second location in said cache memory to said second logical volume.

52 (New) The computer system of claim 51 wherein said data comprises a logical address section, said logical address section having a data content that is changed during said copying between said cache memory and said buffer memory.

53. (New) A method for creating a copy of data in a system comprising a plurality of storage devices, a control unit operable to control said storage devices, said control unit comprising at least one disk adapter and a memory operable to temporarily store data read from said storage devices within said control unit, said storage devices addressable as at least one of a plurality of logical volumes, including a first logical volume and a second logical volume, said method comprising:

said at least one disk adapter creating a copy of data in said first logical volume into said second logical volume; said creating a copy further comprising:
 copying data from said first logical volume to a first location in said memory;
 copying said data from said first location in said memory to a second location in said memory;
 copying said data from said second location in said memory to said second logical volume.

54. (New) The method of claim 53, wherein said system comprises at least one of a plurality of processing units operable to access said control unit, and wherein said copying said data from said first location in said memory to a second location in said memory is performed by said at least one disk adapter substantially independently of said processing units.

55. (New) The method of claim 53, wherein said disk adapter comprises an address change unit, and wherein said copying said data from said first location in said memory to a second location in said memory further comprises:
 reading data from said first location in said memory into a buffer location within said address change unit;
 exchanging a logical address within said data from an address corresponding to said first logical volume to an address corresponding to said second logical volume; and
 writing said data to said second location in said memory.

56. (New) A computer system comprising a plurality of storage devices, a control unit operable to control said storage devices, said control unit comprising at least one disk adapter and a memory operable to temporarily store data read from said storage devices within said control unit, said storage devices addressable as at least one of a plurality of logical volumes, including a first logical volume and a second logical volume, said at least one disk adapter operatively disposed to:

create a copy of data in said specified first logical volume into said second logical volume; said creating a copy further comprising:

copy data from said first logical volume to a first location in said memory;

copy said data from said first location in said memory to a second location in said memory;

copy said data from said second location in said memory to said second logical volume.

57. (New) The system of claim 56, comprising wherein said system comprises at least one of a plurality of processing units operable to access said control unit, and wherein said copying said data from said first location in said memory to a second location in said memory is performed by said at least one disk adapter substantially independently of said processing units.

58. (New) The method of claim 56, wherein said disk adapter comprises an address change unit, and wherein said copying said data from said first location in said memory to a second location in said memory further comprises:

reading data from said first location in said memory into a buffer location within said address change unit;

exchanging a logical address within said data from an address corresponding to said first logical volume to an address corresponding to said second logical volume; and
writing said data to said second location in said memory.

Shoji Kodama, et al.
Application No.:
Page 10

PATENT

REMARKS

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



Robert C. Colwell

Reg. No. 27,431

TOWNSEND and TOWNSEND and CREW LLP

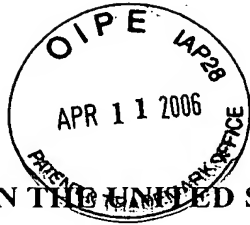
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23307372 v5
RCC:elg



PATENT
Attorney Docket No.: 16869P-006210US
Client Reference No.: 349800444US2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Kouji Arai, et al.

Application No.:

Filed:

For: SYSTEM AND METHOD FOR
REPLICATING DATA

Examiner: Frantz Coby

Art Unit: 2171

INFORMATION DISCLOSURE
STATEMENT UNDER 37 CFR §1.97 and
§1.98

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The references cited on attached form PTO/SB/08A and PTO/SB/08B are being called to the attention of the Examiner. In accordance with 37 CFR §1.98(d), copies of the references can be found in Application No. 09/528,416, filed March 17, 2000 (Attorney Docket No. 16869P-006200). It is respectfully requested that the cited references be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

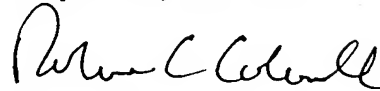
As provided for by 37 CFR 1.97(g) and (h), no inference should be made that the information and references cited are prior art merely because they are in this statement and no representation is being made that a search has been conducted or that this statement encompasses all the possible relevant information.

Applicant believes that no fee is required for submission of this statement. However, if a fee is required, the Commissioner is authorized to deduct such fee from the undersigned's Deposit Account No. 20-1430. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

Kouji Arai, et al.
Application No.:
Page 2

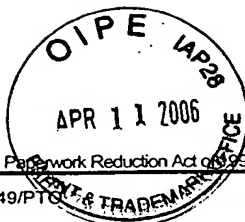
PATENT

Respectfully submitted,



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STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Page 1 of 1

Complete if Known

Application Number	
Filing Date	
First Named Inventor	Arai, Kouji, et. al.
Art Unit	2171
Examiner Name	Frantz Coby
Attorney Docket Number	16869P-006210US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code ² (if known)			
	AA	US-5,845,295	12/1/98	Houseman et al.	
	AB	US-5,857,208	1/5/99	Ofek	
	AC	US-6,009,481	12/1999	Mayer	
	AD	US-5,983,316	11/1999	Norwood	
	AE	US-5,987,566	11/1999	Vishlitzky	
	AF	US-5,961,652	10/1999	Thompson	
	AG	US-6,105,118	8/2000	Maddalozzo, Jr. et al.	
	AH	US-6,023,584	2/2000	Barton et al.	
	AI	US-5,819,310	10/1998	Vishlitzky et al.	
	AJ	US-5,390,313	2/1995	Yanai et al.	
	AK	US-5,423,046	6/1995	Nunnelley et al.	
	AL	US-5,212,784	5/1993	Sparks	
	AM	US-5,392,244	2/1995	Jacobson et al.	
	AN	US-5,435,004	7/1995	Cox et al.	
	AO	US-5,432,922	7/1995	Polyzois et al.	
	AP	US-5,897,661	4/1999	Baranovsky et al.	
	AQ	US-6,112,257	8/2000	Mason, Jr. et al.	
	AR	US-5,742,792	4/21/1998	Yanai et al.	
	AS	US-5,852,715	12/22/1998	Raz et al.	
	AT	US-6,101,497	8/8/2000	Ofek	
	AU	US-6,092,066	7/18/2000	Ofek	
	AV	6,035,412	3/732000	Tamer et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)				
	AW	EP	0 671 686	A1	02/07/1995			<input type="checkbox"/>
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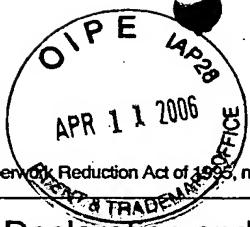
Examiner
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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Declaration and Power of Attorney For Patent Application

特許出願宣言書及び委任状

Japanese Language Declaration

日本語宣言書

下記の氏名の発明者として、私は以下の通り宣言します。

As a below named inventor, I hereby declare that:

私の住所、私書箱、国籍は下記の私の氏名の後に記載された通りです。

My residence, post office address and citizenship are as stated next to my name.

下記の名称の発明に関して請求範囲に記載され、特許出願している発明内容について、私が最初かつ唯一の発明者（下記の氏名が一つの場合）もしくは最初かつ共同発明者であると（下記の名称が複数の場合）信じています。

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

System and Method for Replicating Data

上記発明の明細書（下記の欄で×印がついていない場合は、本書に添付）は、

The specification of which is attached hereto unless the following box is checked:

☐ 月 日に提出され、米国出願番号または特許協定条約国際出願番号を _____ とし、
(該当する場合) _____ に訂正されました。

☒ was filed on 17/March/2000
as United States Application Number or
PCT International Application Number
09/528416 and was amended on
(if applicable).

私は、特許請求範囲を含む上記訂正後の明細書を検討し、内容を理解していることをここに表明します。

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

私は、連邦規則法典第37編第1条56項に定義されるとおり、特許資格の有無について重要な情報を開示する義務があることを認めます。

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

Japanese Language Declaration (日本語宣言書)

私は、米国法典第35編119条(a)-(d)項又は365条(b)項に基づき下記の、米国外の国の少なくとも一カ国を指定している特許協力条約365(a)項に基づき国際出願、又は外国での特許出願もしくは発明者証の出願についての外国優先権をここに主張するとともに、優先権を主張している、本出願の前に出願された特許または発明者証の外国出願を以下に、枠内をマークすることで、示している。

Prior Foreign Application(s)

外国での先行出願

P11-075174

(Number)

(番号)

Japan

(Country)

(国名)

(Number)

(番号)

(Country)

(国名)

私は、第35編米国法典119条(e)項に基づいて下記の米国特許出願規定に記載された権利をここに主張いたします。

(Application No.)

(出願番号)

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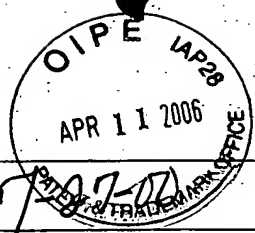
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Signed on the date(s) indicated aside signatures:

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2) <u>Susumu Suzuki</u>	<u>July. 4, 2000</u>
3) <u>Hironori Yasukawa</u>	<u>July. 7, 2000</u>
4) _____	_____
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4. Application Number(s) or Patent Numbers.

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PATENT APPLICATION

System and Method for Replicating Data

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System and Method for Replicating Data

CROSS-REFERENCES TO RELATED APPLICATIONS

This application claims priority from Japanese Patent Application Reference No.

10 11-075174 filed March 19, 1999, the entire contents of which is incorporated herein by reference for all purposes.

BACKGROUND OF THE INVENTION

The present invention relates generally to computing systems and more
15 specifically to techniques for controlling copying of logical volumes within a computer storage system.

Modern computing systems can comprise a plurality of logical volumes within a mass storage system. Mass storage systems can be implemented in a variety of form factors, including DASD, optical storage media, tape storage media, and the like.
20 Often, it is desirable to perform copies of content from one logical volume to another logical volume in a mass storage system. A conventional method for performing such a copy is known as a REMOTE COPY function. In the REMOTE COPY function, host channels are used for transferring the copied data. A control unit, behaving as if it were a processing unit, sends data stored in a logical volume via a host channel. The data is
25 received by another host channel and written to the logical volume. Thus, a copy of the logical volume is created.

When the copy function is executed in one control unit, a plurality of host channels is employed. Therefore, the number of host channels available for the normal host connection is decreased. Such conventional methods typically burden computational
30 resources, such as host channels, during the copy process.

What is really needed are techniques for copying information from one logical volume to another without burdening host channel resources for connecting between the control unit and processing units.

SUMMARY OF THE INVENTION

According to the present invention, techniques for controlling copying of logical volumes within a computer storage system are provided. A representative embodiment includes a plurality of storage devices controlled by a control unit, one or
5 more processors, and a buffer memory for temporarily storing data read from the storage devices within the control unit. The storage devices can be addressed as logical volumes.

In an exemplary embodiment, the invention provides a method for creating a copy on a second logical volume of data stored on a first logical volume. The method can comprise a variety of steps, such as specifying a relationship between two or more
10 logical volumes. The method can also include creating a copy of data in a specified first logical volume into said second logical volume. Creating such a copy can include steps of copying data from the first logical volume to a first location in a buffer memory located within a control unit. Copying can be performed by the control unit substantially independently of processor control. Then, data can be copied from the first location in
15 the buffer memory to a second location in the buffer memory. Subsequently, data from the second location in the buffer memory can be copied to the second logical volume. This copying can be performed by the control unit substantially independently of processor control, also. As used herein, substantially independently of processor control can include performing copy processing at the control unit level without necessitating
20 intermediate communication between a command start from the processor to the control unit and a command complete signal from the control unit to the processor.

In another embodiment, the invention provides a computer system comprising a plurality of devices. A plurality of storage devices controlled by one or more control units can be part of the computer system. One or more processing units
25 operable to access the control unit or units can also exist in the computer system. A buffer memory operable to temporarily store data read from the storage devices within the control unit can also be part of the computing system. The storage devices can be addressed as one or more logical volumes. The control unit is able to establish a relationship between at least two logical volumes (i.e., a first logical volume and a second
30 logical volume) located in the storage devices. The control unit can create a copy of data in the first logical volume into the second logical volume. Such creating a copy can include copying data from the first logical volume to a first location in the buffer memory. Then, the data can be copied from the first location in the buffer memory to a second location in the buffer memory, changing meta-data indicating the device that may

access the data to reflect the second logical volume. Thereupon, the data can be copied from the second location in the buffer memory to the second logical volume. These operations by the control unit can be performed substantially independently of the processing units. In a representative embodiment, the buffer can comprise approximately 10 Gigabytes, for example.

In a further embodiment, the invention provides a computer program product for controlling the copying of information from a first logical volume to a second logical volume in a computer system. The computer program product can comprise a computer readable storage medium containing a variety of program code. Code for specifying a relationship between the first logical volume and the second logical volume can be part of the computer program product. The product can also include code for creating a copy of data in the first logical volume into the second logical volume. The code for creating a copy can comprise various program codes. Program code for copying data from the first logical volume to a first location in a buffer memory can be part of the program product. The product can also include code for copying the data from the first location in the buffer memory to a second location in the buffer memory. Code for copying the data from the second location in the buffer memory to the second logical volume can also part of the program product. The codes for copying the data from the first location in the buffer memory to the second location in the buffer memory is executed by a control unit substantially independently of a central processing unit.

Select embodiments according to the present invention can be operable with an arrayed disk subsystem. Data may be readily moved to a logical volume having different access characteristics by creating a pair among logical volumes having different RAID levels. Specific embodiments according to the present invention can include a function for creating the data copy, such that, a single logical volume is defined as a primary volume, plural different logical volumes are defined as secondary volumes, and each pair is defined as a different pair.

Numerous benefits are achieved by way of the present invention over conventional techniques. Some embodiments according to the present invention can create a copy of specified logical volume without occupying host channels. In such embodiments, control unit load can be reduced. Many embodiments according to the present invention can create a copy at a specified time. Further, in specific embodiments, data in a secondary volume can be used as a series of the historical records of the primary volume switching the secondary volumes one after another. Many embodiments enable

data to be replicated more easily, quickly and with improved system loading than heretofore known methods. These and other benefits are described throughout the present specification. A further understanding of the nature and advantages of the invention herein may be realized by reference to the remaining portions of the specification and the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 illustrates a simplified block diagram of a representative example computing system in a specific embodiment according to the present invention;

Fig. 2 illustrates a simplified diagram of a representative command operation in a computing system such as that of Fig. 1 in a specific embodiment according to the present invention;

Fig. 3 illustrates a simplified diagram of representative information operable in a specific embodiment according to the present invention;

Fig. 4 illustrates a simplified diagram of representative information operable in a specific embodiment according to the present invention;

Fig. 5 illustrates a simplified flow chart of representative copy processing in a specific embodiment according to the present invention;

Fig. 6 illustrates a simplified flow chart of representative elemental copy processing in a specific embodiment according to the present invention;

Fig. 7 illustrates a simplified diagram of a representative command block format in a specific embodiment according to the present invention;

Fig. 8 illustrates a simplified diagram of a representative pair status transition in a specific embodiment according to the present invention;

Fig. 9 illustrates a simplified flow chart of representative processing in a specific embodiment according to the present invention;

Figs. 10A-10B illustrate simplified diagrams of example data replications in a representative computing system in a specific embodiment according to the present invention; and

Figs. 11A-11G illustrate representative display screens in a specific embodiment according to the present invention.

DESCRIPTION OF THE SPECIFIC EMBODIMENTS

The present invention provides techniques for controlling copying of logical volumes within a computer storage system. Embodiments according to the present invention can be operable on a wide range of storage devices and systems, for example. Some embodiments can support a buffer memory size of 10 Gigabytes, for example. However, embodiments can support other buffer memory configurations as well. Embodiments can be operable with S/390™, UNIX™, Windows NT™ platforms for example. Many other hardware and software platforms are also suitable for implementing embodiments according to the present invention.

Fig. 1 illustrates a simplified block diagram of a representative example computing system in a specific embodiment according to the present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in the art would recognize other variations, modifications, and alternatives. Fig. 1 illustrates a control unit 102 comprising a cache memory 107, a channel adapter ("CHA") 109, a disk adapter ("DKA") 108, a shared memory 110, for storing control information, for example, and a bus 120 connecting the above mentioned components. A plurality of storage devices 103, 104, 105, and 106 can be coupled to control unit 102. Further, control unit 102 can be coupled to, and can execute commands from, a processing unit 101. Control information can be transferred from the shared memory 110 to the channel adapter 109 or to the disk adapter 108 via the bus.

Fig. 2 illustrates a simplified diagram of a representative command operation in a computing system such as that of Fig. 1 in a specific embodiment according to the present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in the art would recognize other variations, modifications, and alternatives. Fig. 2 illustrates representative command set comprising a command name 210, which can be a create pair command 211, a delete pair command 212, a copy command 213 and a re-synchronize command 214, and the like.

Create pair command 211 can be used to establish a pair by specifying a primary volume and a secondary volume. Embodiments can perform an initial copy operation to copy data from the specified primary volume to the specified secondary volume. The primary volume continues to be accessible to applications during the initial copy. In a specific embodiment, a pace may be selected for initial copy operations. Pace can be slow, indicating copy of one track at a time, medium, for three tracks at a time, and

fast, for fifteen tracks at a time, for example. Slower paces can minimize use of system resources, while faster paces can accomplish the copy operation sooner. Other embodiments using other or different copy speeds will be readily apparent to one of ordinary skill in the art without departing from the scope of the claimed invention.

5 In a representative embodiment according to the present invention, command processing can perform various actions, such as actions 231-263 illustrated in Fig. 2, as well as update a command status. Fig. 8 illustrates a plurality of commands and corresponding status changes in a particular embodiment according to the present invention. For example, a delete pair command 212 can be used to release a pair. Delete
10 pair command processing halts updates to the secondary volume and changes pair status to "no pair" status 801 in Fig. 8. A pair can be deleted any time after the pair has been created. Once a pair is deleted, the secondary volume becomes available for write operations upon being unreserved.

Copy command 213 can be used to create a copy to a secondary volume.
15 In a presently preferred embodiment, the copy command can cause updates pending for the specified secondary volume to be made. Upon invocation, the pair status changes to "paired/copy in progress" status 803. Once copy processing has completed, the status can change to "paired and copied" status 804. An instance of pair tracking information, indicating pair number, primary and secondary volumes and the like, is added to pair
20 information 300 in order to represent the newly created pair. The secondary volume is then made available for read/write access by applications. The primary volume continues to be accessible to applications during create pair command processing. As with create pair command 211 processing, a pace may be selected for update copy operations from among slow, medium and fast.

25 Re-synchronize pair command 214 can bring a status transition to "paired and not copied" status again after a copy is created. In a presently preferred embodiment, re-synchronize pair processing can compare the secondary volume track map with the primary volume track map in control information 401 of Fig. 4 in order to determine all unequal tracks. Then, unequal tracks can be copied from the primary volume to the
30 secondary volume. As with create pair command 211 processing, a pace may be selected for the re-synchronize copy operations from among slow, medium and fast.

Fig. 3 illustrates a simplified diagram of representative information in a specific embodiment according to the present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in

the art would recognize other variations, modifications, and alternatives. Fig. 3 illustrates representative pair information 300 comprising a pair number 301, a pair status 302, a primary volume number 303, a secondary volume number 304, and a copy pointer 305. Pair information 300 can be stored in shared memory 110, for example. Other
5 embodiments can include other information. Further, some embodiments may not comprise all of the elements of pair information 300.

Fig. 4 illustrates a simplified diagram of representative information in a specific embodiment according to the present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in
10 the art would recognize other variations, modifications, and alternatives. Fig. 4 illustrates representative control information 401. Control information 401 can facilitate the tracking of inequalities among data sets in a pair. In a particular embodiment, control information 401 comprises an array searchable by pair number 301, for example. Entries in control information 401 can comprise a set of the inequality information bits, in this
15 embodiment. An inequality information bit can be reset to value of zero ("0") if the data in corresponding tracks of the primary volume and the secondary volume is equal, and set to a value of one ("1") if the data is made unequal. Control information 401 can be stored in shared memory 110, for example.

Fig. 5 illustrates a simplified flow chart of representative copy processing in a specific embodiment according to the present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in
20 the art would recognize other variations, modifications, and alternatives. Fig. 5 illustrates representative copy command processing 500. Copy command processing 500 can be initiated responsive to receiving a create pair command 211 or create copy command 213,
25 with a pair number as input parameters, for example. In a decisional step 501, the control unit searches pair information 300 for an entry having the same pair number as specified in the input information. Once a suitable entry is located, the pair status 302 of the entry is checked and a determination is made whether the pair status is "paired and not copied" status 802. If the pair status is not "paired and not copied" status 802, a determination is
30 made that the copy command should not continue and copy processing is terminated. If the pair status is "paired and not copied" status 802, then in a step 502, an elemental copy processing 600 is initiated with the pair number as an input parameter. After elemental copy processing 600 completes, then in a decisional step 503 a determination is made whether any further copy processing is to be performed. In a specific embodiment,

decisional step 503 can comprise checking a copy pointer 305 for a match with the maximum address of the logical volume. If the copy pointer 305 does not match the maximum address, the copy processing is determined to be incomplete and processing continues by repeating step 501. Otherwise, if a match is found, then no further copying remains and processing continues with a step 504. In step 504, the pair status 302 is changed to "paired and copied" status and copy processing is complete.

Fig. 6 illustrates a simplified flow chart of representative elemental copy processing in a specific embodiment according to the present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in the art would recognize other variations, modifications, and alternatives. Fig. 6 illustrates elemental copy processing 600. Elemental copy processing 600 includes a step 601, in which a control unit searches pair information 300 for an entry having the same pair number as specified in the input information. Then, in a step 601, the control unit can fetch the copy pointer 305 related to the selected entry. Next, in a step 602, the control unit searches control information 401 for data having an inequality bit set to a value of one ("1") using the address specified by the copy pointer 305 fetched in step 601. Next, in a step 603, the control unit reads the data referred to in step 602 from the primary volume and stores it in cache memory 107. In a step 604, the data stored in the cache memory in step 603 is copied to another location in the cache memory 107 and the logical volume number included in the copied data is changed to the secondary volume number 304 from the primary volume number 303. Then, in a step 605, the data copied in step 604 is written to the secondary volume. In a step 609, the inequality bits related to the data written to the secondary volume are reset to a value of zero ("0"). Next, in a step 606, the copy pointer 305 is advanced by an amount corresponding to the amount of data written to the secondary volume. In a step 607, the copy pointer modified in step 606 is stored in the pair information 300, the elemental copy processing is completed, and processing returns to the caller in a step 608.

Fig. 7 illustrates a simplified diagram of a representative command block format in a specific embodiment according to the present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in the art would recognize other variations, modifications, and alternatives. Fig. 7 illustrates a representative command block comprising a command code 701, a primary volume number 702, and a secondary volume number 703. When a control unit 102 receives a command block, it searches pair information 300 for pair entries having

the same combination of primary volume number 303 and secondary volume number 304 as that of the primary volume number 702 and secondary volume number 703 specified in the command block. The control unit obtains the pair status 302 from this entry and initiates the processing shown in Fig. 2 based upon the command code 701 stored in command block 700.

For example, if the status of the pair specified by a create pair command 211 is "no pair" status 221, the control unit initiates create a new pair processing 231. In a specific embodiment, an empty entry is assigned to the pair information 300. A pair comprising a primary volume number and a secondary volume number specified in the create pair command 211 can be set into the area of primary volume number 303 and the area of secondary volume number 304 in the pair information 300 respectively. A copy pointer 305 is initialized, and then copy process 500 is initiated.

If the pair specified in create pair command 211 is in a status other than "no pair" status 221, the control unit does nothing. If the pair specified in a delete pair command 212 has "no pair" status 221, the control unit does nothing. If the pair specified in a delete pair command 212 is in paired status 222 or 223, the control unit initializes the entry of the pair information 300 corresponding to the specified pair.

If the pair specified by a create copy command 213 is in "no pair" status 221, the control unit does nothing. If the pair specified in a create copy command 213 is in "paired and not copied" status 222, the control unit sets the inequality bit in the control information table 401 to a value of one ("1") for the data of the specified volume. Then, the control unit initializes the copy pointer 305, and invokes the copy processing 500. If the pair specified by a create copy command 213 is in "paired and copied" status 223, the control unit does nothing.

If the pair specified by re-synchronize pair command 214 is in "no pair" status 221, the control unit does nothing. If the pair specified by re-synchronize pair command 214 is in "paired and not copied" status 222, the control unit does nothing. If the pair specified by a re-synchronize pair command 214 is in "paired and copied" status 223, the control unit changes the current pair status to "paired and not copied" status 222.

Fig. 8 illustrates a representative pair status transition diagram for pair status 302 in a typical entry of pair information 300 in a specific embodiment according to the present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in the art would recognize other variations, modifications, and alternatives. In Fig. 8, a "no pair" status 801 indicates that

a pair has not been established. A "paired and not copied" status 802 indicates that a pair has been established but a copy to the secondary volume has not been initiated yet. A "paired and copy in progress" status 803 indicates that copy processing to the secondary volume is being executed. A "paired and copied" status 804 indicates that copy to the secondary volume is complete.

A delete pair command 212 causes a status transition to "no pair" status 801 from any status. A create pair command 211 causes a status transition to "paired and not copied" status 802 from "no pair" status 801. A create copy command 213 causes a status transition to "paired and copy in progress" status 803 from "paired and not copied" status 802. Copy processing 500 completion causes a status transition to "paired and copied" status 804 from "paired and copy in progress" status 803. A re-synchronize pair command 214 causes a status transition to "paired and not copied" status 802 from "paired and copied" status 804.

Fig. 9 illustrates a simplified flow chart of representative change request processing in a specific embodiment according to the present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in the art would recognize other variations, modifications, and alternatives. A request to change the data in a primary volume may be made during a copy process, for example. Fig. 9 illustrates a step 901, in which a control unit, such as control unit 102 of Fig. 1, for example, searches the pair information 300 for entries having the same primary volume number as the volume number specified in the input information for the change request. In a step 902, the control unit fetches the pair status 302 from the entry corresponding to the pair number obtained in step 901 and checks if the pair status is in "paired and copy in progress" status 803.

If the status is not "paired and copy in progress" status 803, then the control unit executes a normal write processing in a step 909. Otherwise, if the status is "paired and copy in progress" status 803, then control unit processing continues with a step 903. In step 903, the control unit searches the control information 400 corresponding to the data to be modified as requested by the processing unit 101. The control unit can perform this searching using the pair number obtained in step 901. Once located, the control unit checks the corresponding inequality bit for a value of one ("1"). If the bit does not have a value of one, then the control unit processing continues with step 909, which executes normal write processing. Otherwise, if the bit is a one, then the control unit processing continues with a step 904. In step 904, the data to be modified is read

from the primary volume into the cache memory. Then, in a step 905, the data read into the cache memory in step 904 is copied in the buffer memory for the secondary volume and the logical volume number included in the copied data is changed to the secondary volume number 304 from the primary volume number 303. Then, in a step 906, the data
5 copied in step 905 is written to the secondary volume. Next, in a step 907, the inequality bit corresponding to the data written to the secondary volume is reset to zero ("0"). In step 909, the control unit writes the data to be transferred to the primary volume.

Fig. 10A illustrates a simplified block diagram of a representative example of copying data between logical volumes in a specific embodiment according to the
10 present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in the art would recognize other variations, modifications, and alternatives. Fig. 10A illustrates a control unit 1002 comprising a cache memory 1007, a channel adapter ("CHA") 1009, a disk adapter ("DKA") 1008, which are interconnected by a bus (not shown). A plurality of storage devices 1003 and
15 1004 can be coupled to control unit 1002 via disk adapter 1008, and storage devices 1005 and 1006 can be coupled to control unit 1002 via disk adapter 1010. Further, control unit 1002 can be coupled to, and can execute commands from, a processing unit 1001. Control information can be transferred from a shared memory (not shown) to the channel adapter 1009 or to the disk adapters 1008 and 1010 via the bus.

20 Arrow number one indicates a host write command sent from the processor 1001 to control unit 1002. Arrow two illustrates a device end that is sent from channel adapter 1009 to processor 1001. Disk adapter 1008 performs a copy of data from primary logical volume 1003 into a first location 1300 in cache memory 1007, as indicated by arrow three. Thereupon, a second copy of the data is made into a second
25 location 1302 in cache memory 1007 and the logical volume number included in the copied data is changed from the primary volume number to the secondary volume number, as indicated by arrow four. As indicated by arrows five and six, the data is copied by disk adapter 1010 into storage device 1006 in order to complete the copy.

Fig. 10B illustrates a simplified block diagram of a representative example of copying data between locations in a cache memory in a specific embodiment according
30 to the present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in the art would recognize other variations, modifications, and alternatives. Fig. 10B illustrates an address change unit 1020, which in a representative embodiment can be a data recovery and reconstruction

(DRR) unit, for example, having a buffer 1021, a cache 1022, a first physical device 1024 and a second physical device 1026. In a particular embodiment, address change unit 1020 can be located within a disk adapter unit such as disk adapter 108 of Fig. 1, for example.

First physical device 1024 and second physical device 1026 can be of many types of

5 storage devices, such as storage devices 103, 104, 105 and 106 of Fig. 1, for example.

Cache 1022 can be cache memory 107, for example. Data can be comprise a user data section 1027, a logical address section 1029 and a check code section 1031, for example.

In a specific embodiment according to the present invention, a copy process can execute on DKA processors, for example. A first cache location 1022a and a
10 second cache location 1022b can be secured in cache 1022, for example, to correspond to the first physical device 1024 and second physical device 1026, respectively. A command can be issued to address change unit 1020 to perform a copy of data stored in first physical device to a second physical device. Arrows 1, 2, 3 and 4 illustrate processing of such a command in a representative embodiment. Arrow 1 indicates a copy
15 of the data from the first physical device 1024 into a first cache location 1022a. Then, as indicated by arrow 2, the data is moved from first cache location 1022a into buffer 1021. While data is contained in buffer 1021, a logical address, LA, portion within the data can be changed from indicating a device number (DEV) of first physical device 1024 to a device number of second physical device number 1026. A check code, CD, which can be
20 parity or other type of check data, can be updated to reflect the change in the LA. Arrow 3 illustrates copying of the data from the buffer 1021 into a second location 1022b within cache 1022. Arrow 4 indicates a copy of the information from the second location 1022b in cache 1022 into second physical device 1026.

Figs. 11A-11G illustrate representative display screens in a specific
25 embodiment according to the present invention. Fig. 11A illustrates a representative user interface screen 1500 having a display mode selection area 1501. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in the art would recognize other variations, modifications, and alternatives. Display mode selection area 1501 enables the user to select either a volume display mode, such as
30 illustrated by Fig. 11A, or a pair display mode, such as illustrated by Fig. 11B, using a selection button mechanism. A port selection field 1502 enables the user to specify a desired port, as well as all ports. A volume display control area 1503 becomes active when volume display mode is selected in display mode selection area 1501. Volume display control area 1503 enables the user to "filter" the volumes displayed in a volume

list display area 1504. Filtering can be performed by reserve attribute and by pair condition, for example. An attribute reserve box 1505 enables the user to display reserved or unreserved volumes. Furthermore, volume pair/no pair selection boxes 1506 enable the display of paired and/or non-paired volumes. When volume display mode is selected in display mode selection area 1501, the volume display area 1504 lists installed volumes (LUs) on the selected port and displays information for each volume. Volume display area 1504 provides information about storage. In a present embodiment, such information can include a port identifier, comprising a cluster and channel number, for each volume. A target identifier, including an LU number, for each volume can also be included in display area 1504. Further, display area 1504 can also include a volume number, comprising a control unit and logical device identifier for each volume, a number of pairs formed with the volume. A status of the volume, including normal, blocked, format, correct, copying, or unknown, a device emulation type (e.g., OPEN-3, OPEN-9), and a storage capacity of the volume can also be displayed.

A pair display control area 1507 enables the user to "filter" the pairs displayed in the volume display area 1504 by pair status. Pair status can include simplex, pending, duplex, split, re-sync, suspend, SP-Pending, for example. A Define status display area 1508 provides a display of DASD usage, including the total number of open system volumes, total and maximum number of reserved volumes and total and maximum number of pairs.

A plurality of buttons along the right side of the screen of Fig. 11A enable the user to perform the following operations. A Pair Status button 1510 displays the pair status for the selected volume(s)/pair(s). A Stat&History button 1511 displays the pair status and history for the selected volume(s)/pair(s). An Add Pair button 1512 enables new pairs to be added. A Delete Pair button 1513 allows pairs to be deleted. Suspend Pair button 1509 enables suspending of a pair. A Split Pair button 1514 allows the user to copy the contents of a source logical volume to a target logical volume in a pair. A Re-sync Pair button 1515 enables the user to re-synchronize pairs. An Attribute button 1516 enables the set/reset of reserve attributes. A T-VOL Path button 1517 displays the secondary logical volume SCSI paths for the selected pair(s). A Refresh button 1518 updates the information displayed. An Exit button 1519 returns to a previous panel.

Fig. 11B illustrates a representative volume list display area in a particular embodiment according to the present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in the art would

recognize other variations, modifications, and alternatives. Fig. 11B illustrates volume display area 1504 displaying information about pairs. Information such as port identifiers, logical unit number, control unit numbers and logical device identifiers and volume status can be displayed for both primary and secondary volumes. Additionally, a pair status can be displayed for the volume pair.

Fig. 11C illustrates a representative panel for adding a pair in a particular embodiment according to the present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in the art would recognize other variations, modifications, and alternatives. Fig. 11C illustrates add pair dialog panel 1520 that can be opened by selecting Add Pair button 1512 on screen 1500 of Fig. 11A. Panel 1520 displays the primary ("S-VOL") and secondary ("T-VOL") information for the pair(s) being added. In a present embodiment, information can include a port, a TID, a LUN, a CU image, an LDEV ID, volume status and emulation type. The secondary volume corresponding to each primary volume can be displayed once the primary volume has been selected. The user can select a secondary volume (i.e., the T-VOL(s)) for each primary volume (i.e., the S-VOL) by highlighting the primary volume in display area 1521, then scrolling through a list of secondary volumes within the volume display area 1522. The user can select a copy pace for adding the pairs using copy pace selection pull down 1523. Copy pace can be slow (one track at a time), medium (three tracks at a time) or fast (fifteen tracks at a time).

Volume display area 1522 displays detailed volume information for a selected pair, including S-VOL ID (port, TID, LUN, CU, LDEV), storage capacity, and number of existing pairs. A T-VOL display area 1524, within volume display area 1522, enables selection of a secondary volume automatically or manually. When Auto is selected, the SVP selects the secondary volume from the set of reserved volumes by LDEV ID (in ascending order, lowest to highest). When Select is selected, the Volume and Port display options can be used to display the available secondary volumes by port and by reserve attribute.

A plurality of buttons includes a Change button 1525, which replaces the secondary volume for the selected primary as specified. A Set button 1526 adds an additional secondary volume to the selected primary volume as specified. An Omit button 1527 deletes the selected primary volume(s)/pair(s) from the list of pairs. An Undo button 1528 undoes the previous Change or Set command. An Add button 1529 adds all pairs in the list. An Exit button 1530 closes dialog panel 1520.

Fig. 11D illustrates a representative panel for displaying pair status and history information in a particular embodiment according to the present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in the art would recognize other variations, modifications, and alternatives. Fig. 11D illustrates status and history panel 1531 that can be opened by selecting Status&History button 1511 on screen 1500 of Fig. 11A. Panel 1531 comprises a status display area 1532 and a history display area 1533. Status display area 1532 can display information for a selected port, for example. Representative pair information for pairs associated with the port can include a primary volume identifier, a secondary volume identifier, a pair status, a copy pace, a date and time that the information was acquired (panel opened/refreshed), and the like. A Refresh Status button 1534 updates the information in status display area 1532. A T-VOL Path button 1535 displays secondary volume SCSI paths for a selected pair or pairs. The History display area 1533 can display history information for a selected port. Displayed pair activity information can be ordered according to date and time, primary volume and secondary volume (CU: LDEV), as well as a volume code and a message type. A Date Time button 1536 sorts the list by date and time. An S-VOL button 1537 and T-VOL button 1538 can cause the list to be sorted by primary volume or secondary volume, respectively. A Code button 1539 can cause the list to be sorted by code number, and a Message button 1540 can cause the list to be sorted according to message type. A current primary volumes display area 1541 and current secondary volumes display area 1542 can display primary and secondary volumes currently used, respectively. A Refresh History button 1543 refreshes the pair history information for the selected port. A Refresh All button 1544 updates all information on the Status & History panel. An Exit button 1545 exits the Status & History panel and returns panel 1500.

Fig. 11E illustrates a representative panel for creating a copy of a primary volume to a secondary volume in a particular embodiment according to the present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in the art would recognize other variations, modifications, and alternatives. Fig. 11E illustrates split volume panel 1550 that can be opened by selecting Split pair button 1514 on screen 1500 of Fig. 11A. Split volume pair panel 1550 provides the capability to copy data from a primary volume to secondary volumes for pairs in a list of pair(s) selected on panel 1500, showing the pair status and copy pace for each pair. In a present embodiment, information can include a port, a TID,

a LUN, a CU image, an LDEV ID, volume status and emulation type. The secondary volume corresponding to each primary volume can be displayed once the primary volume has been selected by highlighting the primary volume in display area 1551. The user can select a copy pace for copying data from the primary to the secondary volume of the pairs using copy pace selection pull down 1553. Copy pace can be slow (one track at a time), medium (three tracks at a time) or fast (fifteen tracks at a time) in a representative embodiment.

Volume display area 1552 displays detailed volume information for a selected pair, including S-VOL ID (port, TID: LUN, CU: LDEV), storage capacity and number of existing pairs. Users can change or add secondary volumes to a primary volume using this panel. A T-VOL display area 1554, within volume display area 1552, enables selection of a secondary volume automatically or manually. When Auto is selected, the SVP selects the secondary by LDEV ID. When Select is selected, the volume and port display options can be used to display the available secondary volumes by port and by reserve attribute.

A plurality of buttons includes a Change button 1555, which replaces the secondary volume for the selected primary as specified. A Set button 1556 adds an additional secondary volume to the selected primary volume as specified. An Omit button 1557 deletes the selected primary volume(s)/pair(s) from the list of pairs. An Undo button 1558 undoes the previous Change or Set command. A split button 1559 splits all pairs in the list. An Exit button 1560 closes dialog panel 1551.

Fig. 11F illustrates a representative panel for providing the capability to re-synchronize data sets in a pair comprising a primary volume and a secondary volume in a particular embodiment according to the present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in the art would recognize other variations, modifications, and alternatives. Fig. 11F illustrates resynchronize volume pair panel 1561. Panel 1561 comprises pair list 1562, listing pair(s) selected from panel 1500 and shows the pair status and copy pace for each pair. The user can select a copy pace for copying data from the primary to the secondary volume of the pairs using copy pace selection pull down 1563. Copy pace can be slow (one track at a time), medium (three tracks at a time) or fast (fifteen tracks at a time) in a representative embodiment. A Re-sync button 1564 starts the re-synchronize operation for the specified pair(s). An Exit button 1565 closes panel 1561.

Fig. 11G illustrates a representative panel for providing the capability to delete pairs comprising a primary volume and a secondary volume in a particular embodiment according to the present invention. This diagram is merely an illustration and should not limit the scope of the claims herein. One of ordinary skill in the art would recognize other variations, modifications, and alternatives. Fig. 11G illustrates delete volume pair panel 1571. Panel 1571 comprises pair list 1572, listing pair(s) selected from panel 1500 and shows the pair status for each pair. A delete button 1574 deletes the specified pair(s). An Exit button 1575 closes panel 1571.

10 CONCLUSION

Although the above has generally described the present invention according to specific systems, the present invention has a much broader range of applicability. In particular, the present invention is not limited to a particular kind of computing system, nor a particular type of storage device. Thus, in some embodiments, the techniques of the present invention could provide the capability to make copies of data resident on many different types of computer storage systems. The specific embodiments described herein are intended to be merely illustrative and not limiting of the many embodiments, variations, modifications, and alternatives achievable by one of ordinary skill in the art. Thus, it is intended that the foregoing description be given the broadest possible construction and be limited only by the following claims.

The preceding has been a description of the preferred embodiment of the invention. It will be appreciated that deviations and modifications can be made without departing from the scope of the invention, which is defined by the appended claims.

WHAT IS CLAIMED IS:

1 1. A method for creating a copy of data in a system comprising a
2 plurality of storage devices, a control unit operable to control said storage devices, at least
3 one of a plurality of processing units operable to access said control unit, and a buffer
4 memory operable to temporarily store data read from said storage devices within said
5 control unit, said storage devices addressable as at least one of a plurality of logical
6 volumes, including a first logical volume and a second logical volume, said method
7 comprising:
8 specifying a relationship between at least two of said logical volumes, said
9 relationship defined between said first logical volume and said second logical volume;
10 creating a copy of data in said specified first logical volume into said
11 second logical volume; said creating a copy further comprising:
12 copying data from said first logical volume to a first location in
13 said buffer memory;
14 copying said data from said first location in said buffer memory to
15 a second location in said buffer memory;
16 copying said data from said second location in said buffer memory
17 to said second logical volume;
18 wherein said copying said data from said first location in said buffer
19 memory to a second location in said buffer memory is performed by said control unit
20 substantially independently of said processing units.

1 2. The method of claim 1, wherein said copying said data from said
2 first location in said buffer memory to a second location in said buffer memory further
3 comprises:
4 reading data from said first location in said buffer memory into a buffer
5 location within an address change unit;
6 exchanging a logical address within said data from an address
7 corresponding to said first logical volume to an address corresponding to said second
8 logical volume; and
9 writing said data to said second location in said buffer memory.

1 3. The method of claim 1 further comprising: if a write request is
2 issued to said first logical volume after creating a copy has commenced,

3 creating a copy of data in said first logical volume to said secondary
4 logical volume before said data in said primary volume is modified by said write request.

1 4. The method of claim 1 wherein said relationship further comprises:
2 a pairing of a primary volume and a secondary volume.

1 5. The method of claim 1 further comprising: modifying a location
2 identifier defined in each logical volume.

1 6. The method of claim 1 further comprising: making said second
2 logical volume accessible after said creating a copy of data in said specified first logical
3 volume into said second logical volume.

1 7. The method of claim 1 further comprising: tracking modified data,
2 if a write request is issued to said first logical volume or said second logical volume after
3 the copy processing is completed, and
4 copying said modified data based upon said tracking, if creating a copy is
5 directed again to the pair in copy completed status.

1 8. The method of claim 1 further comprising: deleting said
2 relationship.

1 9. The method of claim 1 wherein said first logical volume is defined
2 as a primary logical volume, said method further comprising:
3 defining at least one of a plurality of different logical volumes as
4 secondary logical volumes; and
5 defining multiple pairs comprising said primary logical volume and one of
6 said plurality of second logical volumes.

1 10. The method of claim 9 wherein data in said secondary logical
2 volumes comprises a series of historical records of said primary volume, said historical
3 records obtained by switching said secondary logical volumes one after another.

1 11. The method of claim 1 further comprising: displaying information
2 about said first logical volume and said second logical volume.

1 12. A method for controlling the copying of information from a first
2 logical volume to a second logical volume in a computer system, said method comprising:
3 specifying a relationship between said first logical volume and said second
4 logical volume;
5 creating a copy of data in said first logical volume into said second logical
6 volume; said creating a copy further comprising:
7 copying data from said first logical volume to a first location into a
8 buffer memory;
9 copying said data from said first location in said buffer memory to
10 a second location in said buffer memory;
11 copying said data from said second location in said buffer memory
12 to said second logical volume;
13 wherein said copying said data from said first location in said buffer
14 memory to a second location in said buffer memory is performed by a control unit
15 substantially independently of a central processing unit.

1 13. A method for controlling the copying of information from a first
2 logical volume to a second logical volume in a computer system, said method comprising:
3 specifying a relationship between said first logical volume and said second
4 logical volume;
5 copying data read from said first logical volume into a buffer memory
6 located within a control unit and thereupon writing said data to said second logical
7 volume; and
8 wherein said copying said data from said first location in said buffer
9 memory to a second location in said buffer memory is performed by said control unit
10 substantially independently of a central processing unit.

1 14. A computer system comprising a plurality of storage devices, a
2 control unit operable to control said storage devices, at least one of a plurality of
3 processing units operable to access said control unit, and a buffer memory operable to
4 temporarily store data read from said storage devices within said control unit, said storage
5 devices addressable as at least one of a plurality of logical volumes, including a first
6 logical volume and a second logical volume, said control unit operatively disposed to:

7 establish a relationship between at least two of said logical volumes, said
8 relationship defined between said first logical volume and said second logical volume;
9 create a copy of data in said specified first logical volume into said second
10 logical volume; said creating a copy further comprising:
11 copy data from said first logical volume to a first location in said
12 buffer memory;
13 copy said data from said first location in said buffer memory to a
14 second location in said buffer memory;
15 copy said data from said second location in said buffer memory to
16 said second logical volume;
17 wherein said copy said data from said first location in said buffer memory
18 to a second location in said buffer memory is performed by said control unit substantially
19 independently of said processing units.

1 15. The computing system of claim 14 wherein said copy said data
2 from said first location in said buffer memory to a second location in said buffer memory
3 further comprises:
4 reading data from said first location in said buffer memory into a buffer
5 location within an address change unit;
6 exchanging a logical address within said data from an address
7 corresponding to said first logical volume to an address corresponding to said second
8 logical volume; and
9 writing said data to said second location in said buffer memory.

1 16. The computing system of claim 14 wherein said buffer further
2 comprises 10 Gigabytes of storage.

1 17. The computing system of claim 14 wherein said plurality of storage
2 devices further comprises a RAID.

1 18. The computing system of claim 14 further comprising a display,
2 said display operable to depict information about said storage devices.

1 19. The computing system of claim 14, wherein said control unit
2 further comprises a data recovery and reconstruct (DRR), said DRR operative to copy

3 said data from said first location in said buffer memory to a second location in said buffer
4 memory; and thereupon change a volume number associated with said data.

1 20. A computer program product for controlling the copying of
2 information from a first logical volume to a second logical volume in a computer system,
3 said computer program product comprising:
4 code for specifying a relationship between said first logical volume and
5 said second logical volume;
6 code for creating a copy of data in said first logical volume into said
7 second logical volume; said code for creating a copy further comprising:
8 code for copying data from said first logical volume to a first
9 location into a buffer memory;
10 code for copying said data from said first location in said buffer
11 memory to a second location in said buffer memory;
12 code for copying said data from said second location in said buffer
13 memory to said second logical volume;
14 wherein said copying said data from said first location in said buffer
15 memory to a second location in said buffer memory is performed by a control unit
16 substantially independently of a central processing unit; and
17 a computer readable storage medium for holding the codes.

1 21. A computer program product for controlling the copying of
2 information from a first logical volume to a second logical volume in a computer system,
3 said computer program product comprising:
4 code for specifying a relationship between said first logical volume and
5 said second logical volume;
6 code for copying data read from said first logical volume into a buffer
7 memory located within a control unit and thereupon writing said data to said second
8 logical volume; and
9 wherein said copying said data from said first location in said buffer
10 memory to a second location in said buffer memory is performed by said control unit
11 substantially independently of a central processing unit; and
12 a computer readable storage medium for holding the codes.

1 22. The computer program product of claim 21 further comprising:

2 code for displaying information about said first logical volume to a second
3 logical volume.

1 23. A control unit for controlling the copying of information, said
2 control unit operable in a computing system comprising at least one of a plurality of
3 storage devices, said control unit operable to control said storage devices, at least one of a
4 plurality of processing units operable to access said control unit, said storage devices
5 addressable as at least one of a plurality of logical volumes, including a first logical
6 volume and a second logical volume, said control unit comprising a buffer memory
7 operable to temporarily store data read from said storage devices within said control unit,
8 said control unit operatively disposed to:
9 copy data read from said first logical volume into a buffer memory located
10 within said control unit;
11 copy said data from said buffer memory to a different location within said
12 buffer memory, changing a volume identifier associated with said data, and thereupon
13 writing said data to said second logical volume; and
14 wherein said copying said data from said first location in said buffer
15 memory to a second location in said buffer memory is performed by said control unit
16 substantially independently of a central processing unit.

1 24. A computer system comprising a plurality of storage devices, said
2 storage devices addressable as at least one of a plurality of logical volumes, including a
3 first logical volume and a second logical volume, at least one of a plurality of processing
4 units, a cache memory operable to temporarily store data, and a control unit operable to
5 store and retrieve data from said storage devices on behalf of said processing units;
6 wherein said control unit is further operable to copy data from a first logical
7 volume to a second logical volume according to a relationship established between said
8 first logical volume and said second logical volume; wherein said control unit copies said
9 data from said first logical volume to a first location in said cache memory; whereupon a
10 data recovery unit within said control unit is operable to create a copy of said data in said
11 first location in said cache memory to a buffer location within said data recovery unit, and
12 thereupon to copy said data from said buffer location within said data recovery unit into a
13 second location in said cache memory; and thereupon to copy said data from said second
14 location in said cache memory to said second logical volume;

15 wherein said data comprises a logical address section, said logical address
16 section having a data content that is changed during said copying between said cache
17 memory and said buffer memory.

1 25. A computer system comprising:
2 a first means for storing data;
3 a second means for storing data;
4 a cache means for temporarily storing data;
5 a data recovery and reconstruction means for creating a copy of data from
6 said first means for storing data into said cache means, and thereupon to create a copy of
7 said data in said cache means into said second means for storing data,
8 wherein said data comprises a logical address section, said logical address
9 section having a data content that is changed by said data recovery and reconstruction
10 means from a physical address corresponding to said first means for storing data to a
11 physical address corresponding to said second means for storing data.

System and Method for Replicating Data

ABSTRACT OF THE DISCLOSURE

5 According to the present invention, techniques for controlling copying of
logical volumes within a computer storage system are provided. A representative
embodiment includes a plurality of storage devices controlled by a control unit, one or
more processors, and a buffer memory for temporarily storing data read from the storage
devices within the control unit. The storage devices can be addressed as logical volumes.

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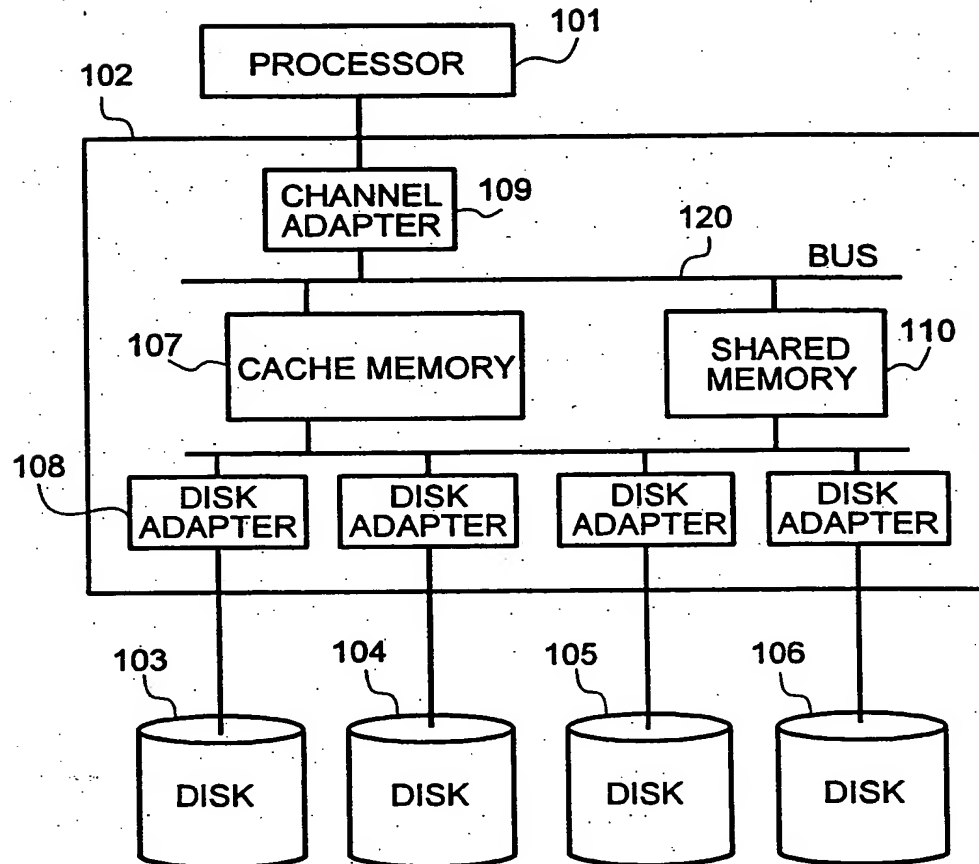
PA 3058111 v1

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**FIG.1**

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FIG.2

210 COMMAND NAME	221 PAIR STATUS		
	222 NO PAIR	220 PAIRED NOT COPIED	223 PAIRED AND COPIED
211 CREATE PAIR	CREATE NEW PAIR (231)	DO NOTHING (232)	DO NOTHING (233)
212 DELETE PAIR	DO NOTHING (241)	DELETE PAIR (242)	DELETE PAIR (243)
213 CREATE COPY (SPLIT OPERATION)	DO NOTHING (251)	INITIATE COPYING (252)	DO NOTHING (253)
214 RE-SYNCHRONIZE	DO NOTHING (261)	DO NOTHING (262)	INITIATE RE-SYNCHRONIZE COPY (263)

FIG.3

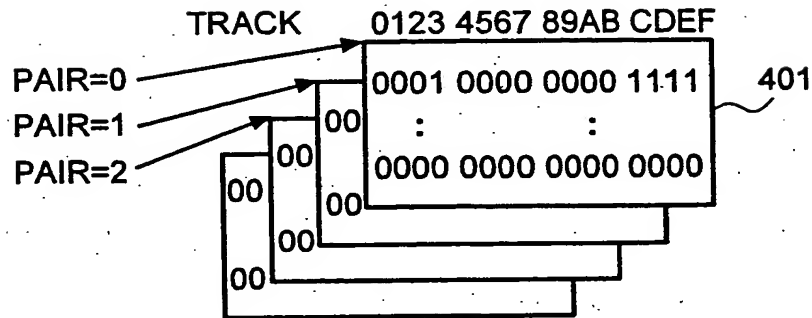
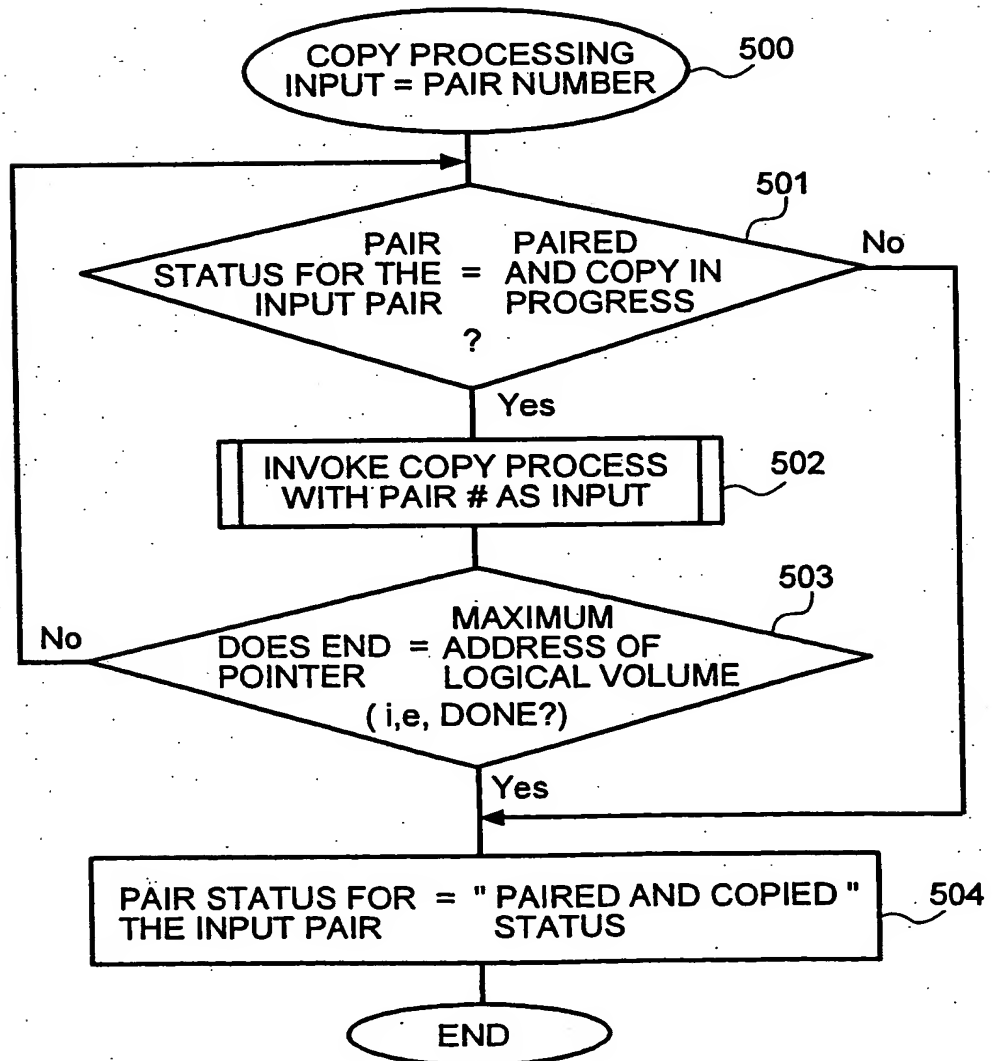
300	301 PAIR NUMBER	302 PAIR STATUS	303 PRIMARY VOLUME	304 SECONDARY VOLUME	305 COPY POINTER
	1	PAIRED NOT COPIED	12	64	0
	:	:	:	:	:

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FIG.4**FIG.5**

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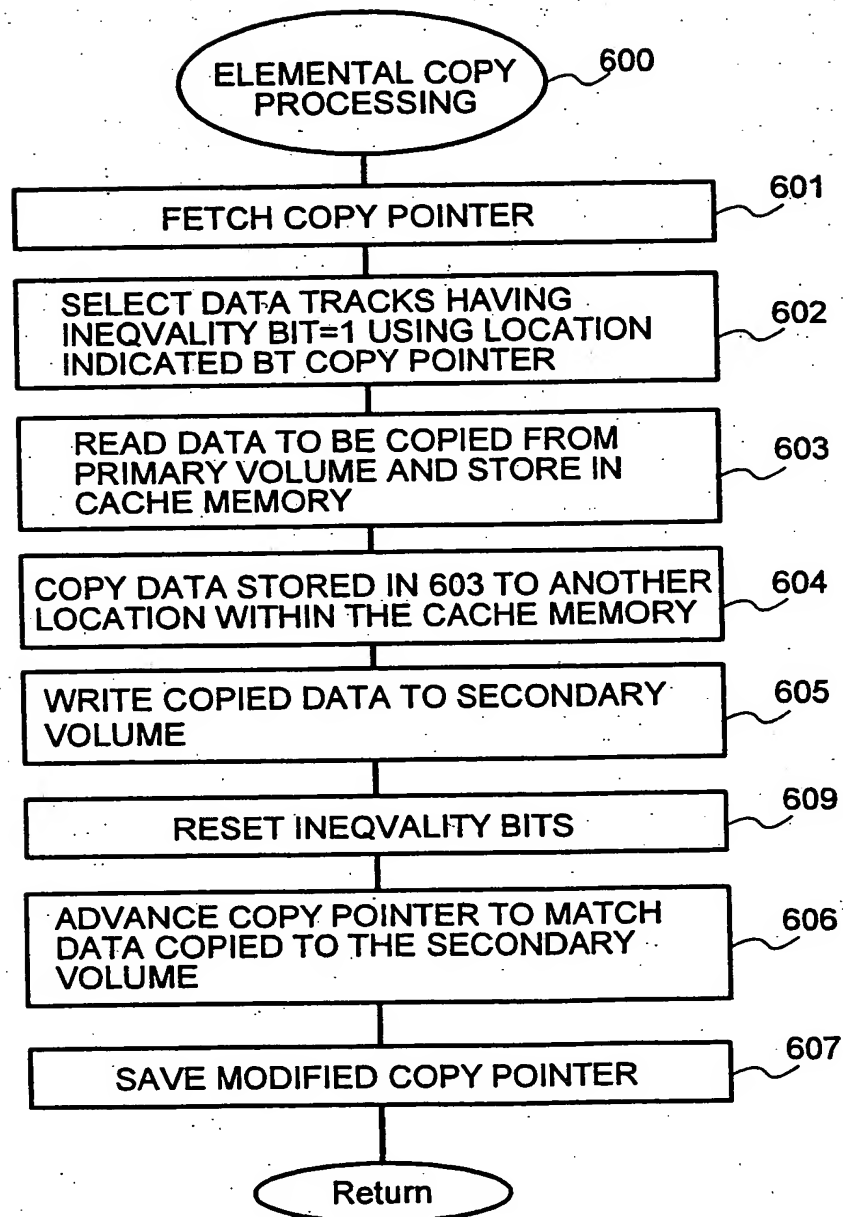
FIG.6

FIG.7

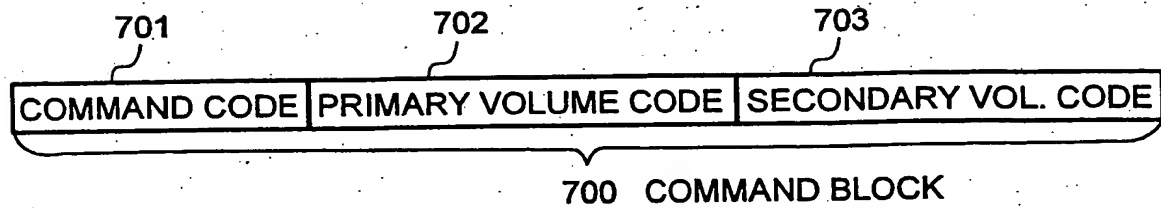
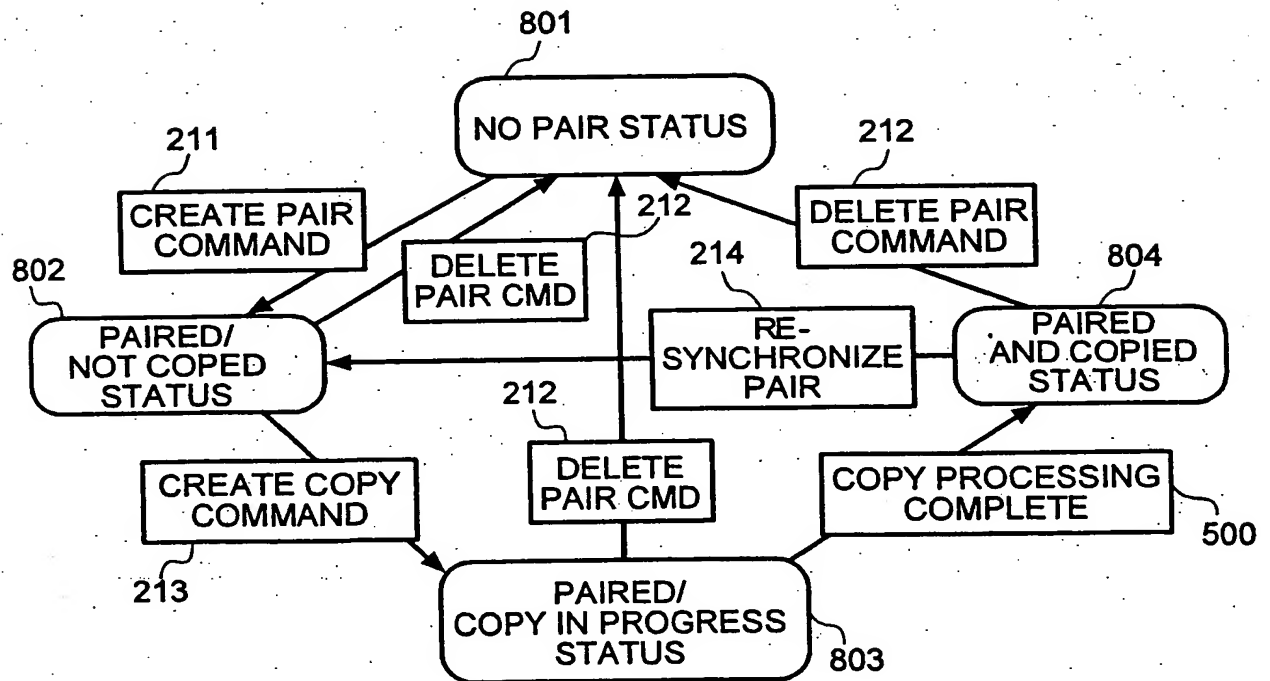


FIG.8

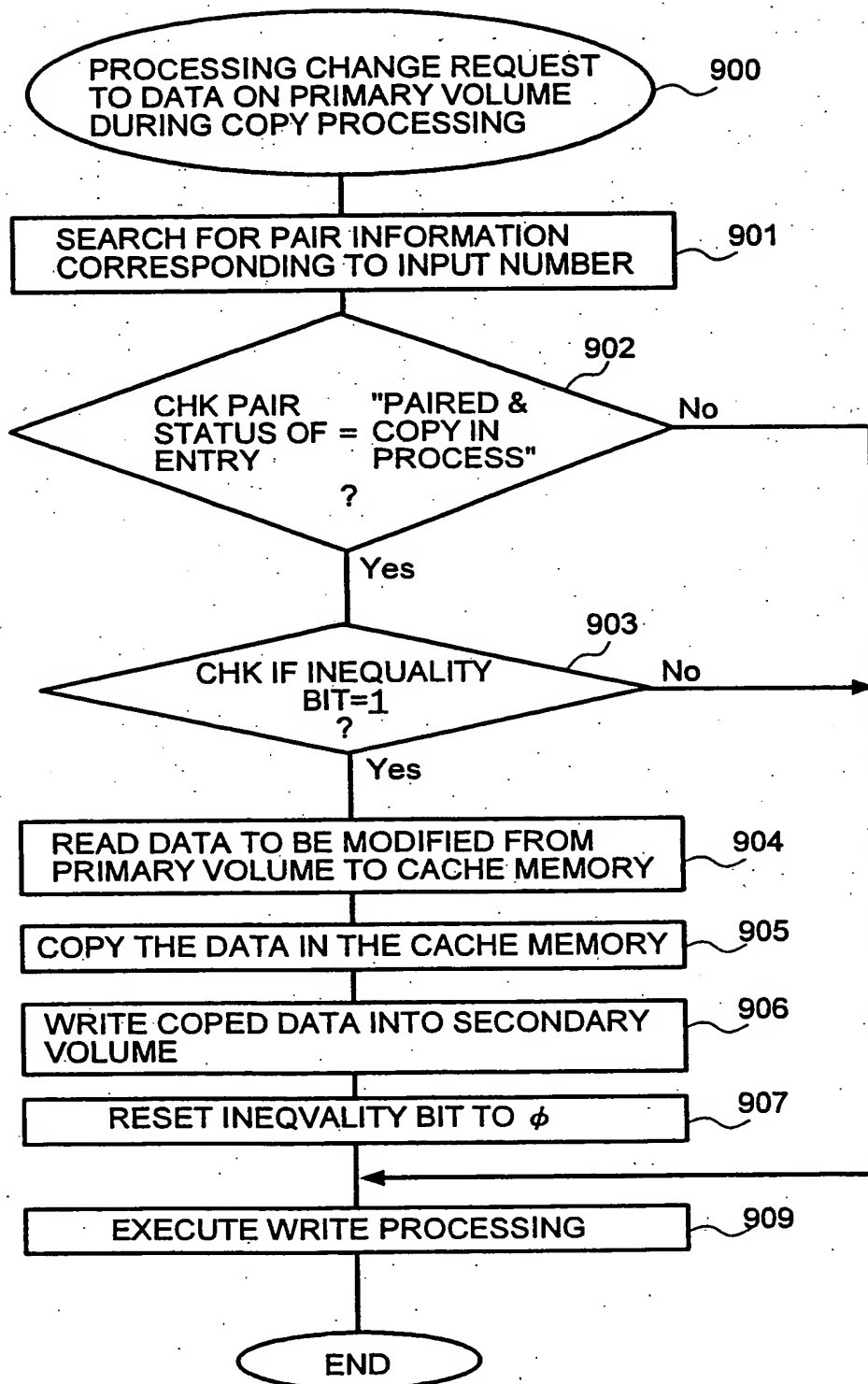


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FIG.9

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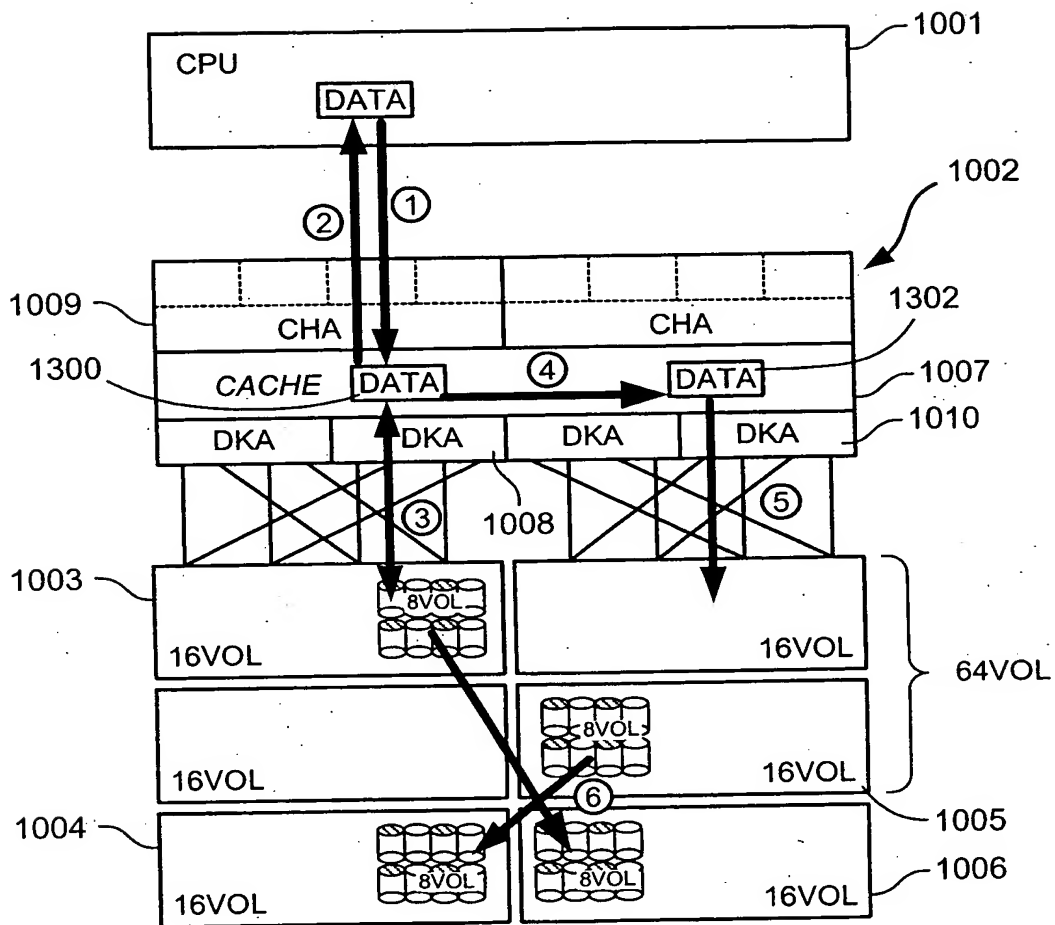


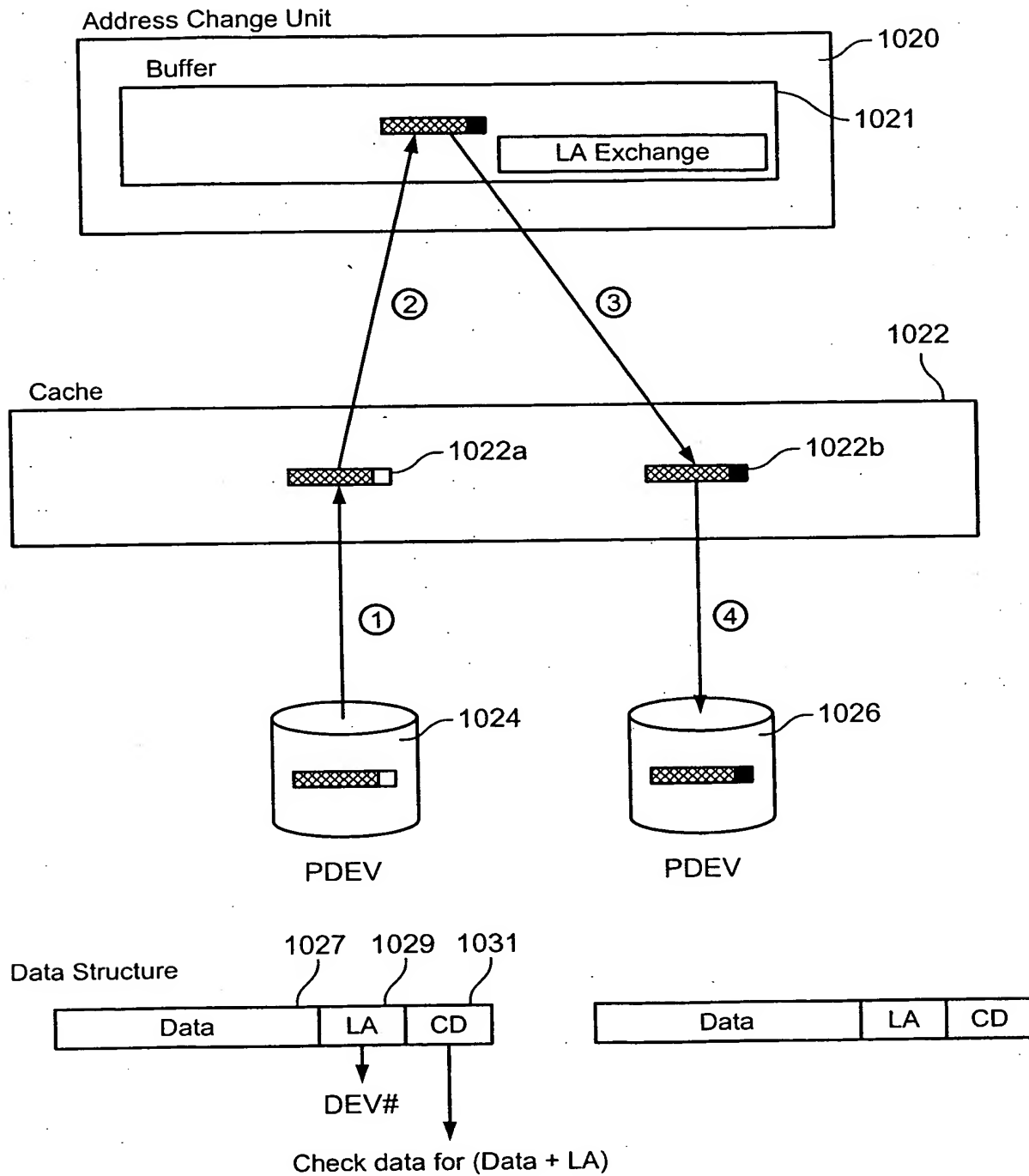
FIG. 10A

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Data Section: User Data

LA Section: Logical Address for Data Section (DEV#)

CD Section: Check Code

FIG. 10B

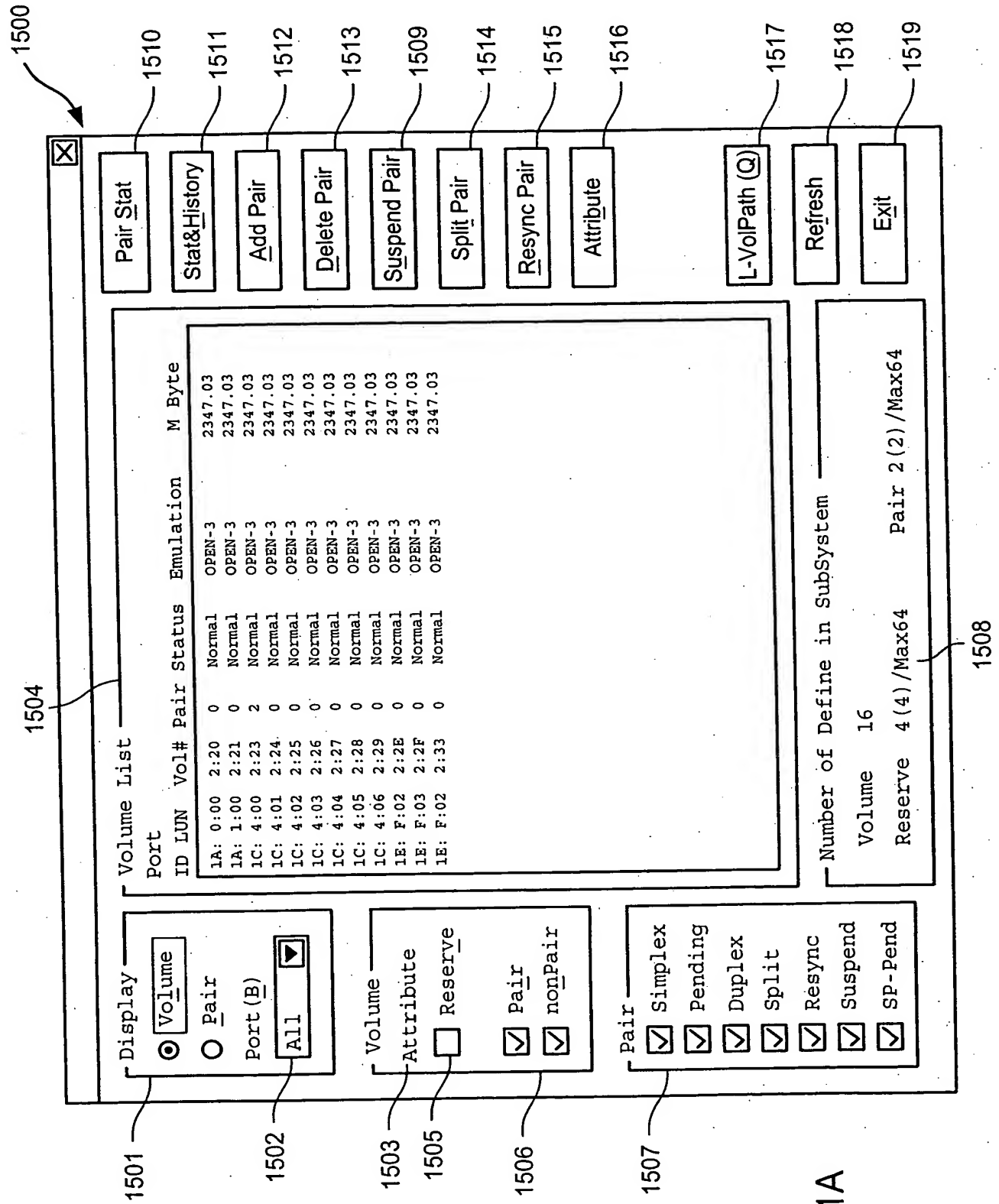


FIG. 11A

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1504

Volume List

Port S-Vol			Port T-Vol			Pair
ID LWN	Vol#	Status	ID LUN	Vol#	Status	Status
1C:4:00	2:23	Normal	1E:F:00	2:2C	Normal	Duplex
1C:4:00	2:23	Normal	1E:F:01	2:2D	Normal	Duplex

FIG. 11B

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Status&History

Status

Date 1999/04/05 Time 11:24:35

S-Vol T-Vol Status Copy Pace

1C:4:00 2:23 1E:F:01 2:2C Duplex

1C:4:00 2:23 1E:F:01 2:2D Duplex

Refresh_Status

Port (B) All

T-VolPath (Q)

History

Refresh_History

Pair

Date Time S-Vol T-Vol Code Message

1999/04/05 10:17:10 2:23 2:2D 4722 DUPLEX END

1999/04/05 10:17:10 2:23 2:2C 4722 DUPLEX END

1999/04/05 10:11:59 2:23 2:2D 4712 PAIR START

1999/04/05 10:11:59 2:23 2:2C 4712 PAIR START

S-Vol T-Vol

Vol# Port:ID:LUN

2:23 1C:4:00

Vol# Port:ID:LUN

2:2D 1E:F:01

Refresh_All

Exit

FIG. 11D

1550

1551

Split Volume Pair

Port	S-Vol	Port	T-Vol	Pair	Copy						
ID LUN	Vol#	Status	Emulation	ID LUN	Vol#	Status	Emulation	Pair	Status	Copy	Pace
1C:4:00	2:23	Normal	OPEN-3	1E:F:00	2:2C	Normal	OPEN-3	Duplex			

Copy Pace Medium 1553

1552

Volume

Port	ID LUN	Vol#	M Byte	Pair	Port	T-Vol			
S-Vol	1C:4:00	2:23	2347.03	2/Max3	ID LUN	Vol#	Status	Emulation	M Byte
T-Vol									
Pair									
Auto	<input checked="" type="radio"/>	Volume	<input checked="" type="checkbox"/> Reserve	Port (B)	1A:0:00	2:20	Normal	OPEN-3	2347.03
Select	<input type="radio"/>	not Reserve		All	1A:1:00	2:21	Normal	OPEN-3	2347.03
					1C:4:01	2:24	Normal	OPEN-3	2347.03
					1C:4:02	2:25	Normal	OPEN-3	2347.03
					1C:4:03	2:26	Normal	OPEN-3	2347.03
					1C:4:04	2:27	Normal	OPEN-3	2347.03

Set 1556 Change 1555 Omit 1557 Undo 1558 Split 1559 Exit 1560

FIG. 11E

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Resynchronize Volume Pair

Port	S-Vol	Port	T-Vol	Pair	Copy
ID LUN	Vol# Status	ID LUN	Vol# Status	Emulation	Pair Status
1C:4:00	2:23 Normal	1E:F:00	2:2C Normal	OPEN-3	Split

Copy

Pair

Medium

Resync

Exit

1562

1563

1564

1565

FIG. 11F

1571

✕

Delete Volume Pair

Port	S-Vol	Emulation	Port	T-Vol	Emulation	Pair	Copy
ID LUN	Vol#	Status	ID LUN	Vol#	Status	Status	Pace
1C:4:00	2:23	Normal	1E:F:00	2:2C	Normal	OPEN-3	Split

Delete

Exit

1572

1575

1574

FIG. 11G

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